

VPDES PERMIT NO. VA0065552

OPEQUON WATER RECLAMATION FACILITY

APPLICATION FOR REISSUANCE OF DISCHARGE PERMIT

MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY

VALLEY REGIONAL OFFICE

4411 Early Road - P.O. Box 3000

Harrisonburg, VA 22801

SUBJECT: Application Errata for the Opequon Water Reclamation Facility, Reissuance, VA0065552,
Frederick County

TO: PP File

FROM: Trevor Wallace



DATE: September 7, 2010

The following deficiencies were noted in the subject permit application:

APPLICATION ADDENDUM

Item 2 – The facility is not with town boundaries.

Item 9 – A revised O&M Manual will be needed for the upgraded and expanded facility. The previous permit application approval date is also the most recent Sludge/Solids Management Plan approval date.

EPA FORM 2A

Item B.6. – The applicant submitted a waiver request for reporting oil and grease and TDS. The justification is adequate and the waiver acceptable.

Part D – The applicant submitted a waiver request for reporting these parameters. The permittee will be conducting a complete WQS parameter scan in accordance with their permit once the expanded 12.6 MGD facility is completed within the next year. The justification is adequate and the waiver acceptable.

VPDES SEWAGE SLUDGE APPLICATION FORM

Section B, Items 2,4,5,6,7,8 & 9 – No responses provided. Should indicate “N/A”

Section B, Item 6.a. – Class A is indicated, but should be listed as Class B.

Reviewer Concurrence: _____

Frederick-Winchester Service Authority

*Post Office Box 43
Winchester, Virginia 22604*

*Office: 107 North Kent Street
County Office Complex
Winchester, Virginia 22601
1-540-722-3579*

August 17, 2010

Trevor Wallace
Environmental Engineer
Virginia Department of Environmental Quality
Valley Regional Office
4411 Early Road
P.O. Box 3000
Harrisonburg, VA 22801

RECEIVED
DEC - Valley
AUG 23 2010

To: _____
FILE: _____

Dear Mr. Wallace:

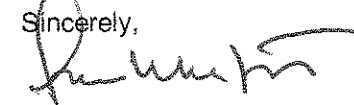
**Reference: Reissuance of VPDES Permit No. VA0065552
Opequon Water Reclamation Facility**

Please find enclosed a completed application for reissuance of the above-mentioned discharge permit issued to the Frederick-Winchester Service Authority for the Opequon Water Reclamation Facility. We have assembled the application into four sections.

- Section 1 titled - Form 2A - which contains the "Basic Application Information" – Parts A, B and C.
- Section 2 titled - Part D, E, & F - which contains supplementary information on effluent testing data, toxicity monitoring data, and industrial users related to the Opequon Facility. Please note that we have included a request to waive the effluent testing data requesting in Part D.
- Section 3 titled - Sludge Permit - which contains information regarding processing, testing and disposal of sludge produced at the Opequon Facility.
- Section 4 titled – Other Forms – which contains VPDES Permit Application Addendum, Permit Billing Information Form and Public Notice Billing Information Form.

We have attempted to reduce the size of the application package by making references where possible to data provided to DEQ through other periodic testing reports that we have provided with DMR reports through the prior permitting period of June 2006 to this date.

Sincerely,



Jesse W. Moffett
Executive Director
Frederick-Winchester Service Authority



"Maintaining and Promoting the Values of the Community through Environmental Stewardship"

SECTION 1

FORM 2A

“BASIC APPLICATION INFORMATION”

PARTS A, B AND C

FACILITY NAME AND PERMIT NUMBER:
Opequon Water Reclamation Facility VA0065552

Form Approved 1/14/99
OMB Number 2040-0086

FORM
2A
NPDES

NPDES FORM 2A APPLICATION OVERVIEW

APPLICATION OVERVIEW

Form 2A has been developed in a modular format and consists of a "Basic Application Information" packet and a "Supplemental Application Information" packet. The Basic Application Information packet is divided into two parts. All applicants must complete Parts A and C. Applicants with a design flow greater than or equal to 0.1 mgd must also complete Part B. Some applicants must also complete the Supplemental Application Information packet. The following items explain which parts of Form 2A you must complete.

BASIC APPLICATION INFORMATION:

- A. **Basic Application Information for all Applicants.** All applicants must complete questions A.1 through A.8. A treatment works that discharges effluent to surface waters of the United States must also answer questions A.9 through A.12.
- B. **Additional Application Information for Applicants with a Design Flow ≥ 0.1 mgd.** All treatment works that have design flows greater than or equal to 0.1 million gallons per day must complete questions B.1 through B.6.
- C. **Certification.** All applicants must complete Part C (Certification).

SUPPLEMENTAL APPLICATION INFORMATION:

- D. **Expanded Effluent Testing Data.** A treatment works that discharges effluent to surface waters of the United States and meets one or more of the following criteria must complete Part D (Expanded Effluent Testing Data):
 - 1. Has a design flow rate greater than or equal to 1 mgd,
 - 2. Is required to have a pretreatment program (or has one in place), or
 - 3. Is otherwise required by the permitting authority to provide the information.
- E. **Toxicity Testing Data.** A treatment works that meets one or more of the following criteria must complete Part E (Toxicity Testing Data):
 - 1. Has a design flow rate greater than or equal to 1 mgd,
 - 2. Is required to have a pretreatment program (or has one in place), or
 - 3. Is otherwise required by the permitting authority to submit results of toxicity testing.
- F. **Industrial User Discharges and RCRA/CERCLA Wastes.** A treatment works that accepts process wastewater from any significant industrial users (SIUs) or receives RCRA or CERCLA wastes must complete Part F (Industrial User Discharges and RCRA/CERCLA Wastes). SIUs are defined as:
 - 1. All industrial users subject to Categorical Pretreatment Standards under 40 Code of Federal Regulations (CFR) 403.6 and 40 CFR Chapter I, Subchapter N (see instructions); and
 - 2. Any other industrial user that:
 - a. Discharges an average of 25,000 gallons per day or more of process wastewater to the treatment works (with certain exclusions); or
 - b. Contributes a process wastestream that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the treatment plant; or
 - c. Is designated as an SIU by the control authority.
- G. **Combined Sewer Systems.** A treatment works that has a combined sewer system must complete Part G (Combined Sewer Systems).

ALL APPLICANTS MUST COMPLETE PART C (CERTIFICATION)

FACILITY NAME AND PERMIT NUMBER:

Opequon Water Reclamation Facility VA0065552

Form Approved 1/14/99
OMB Number 2040-0086

BASIC APPLICATION INFORMATION

PART A. BASIC APPLICATION INFORMATION FOR ALL APPLICANTS:

All treatment works must complete questions A.1 through A.8 of this Basic Application Information packet.

A.1. Facility Information.

Facility name Opequon Water Reclamation Facility

Mailing Address 3100 Berryville Pike
Winchester, VA 22603

Contact person Mr. Donald Riggleman

Title Facility Manager

Telephone number (540) 665-9867

Facility Address 3100 Berryville Pike
(not P.O. Box) Winchester, VA 22603

A.2. Applicant Information. If the applicant is different from the above, provide the following:

Applicant name Frederick-Winchester Service Authority

Mailing Address P.O. Box 43
Winchester, VA 22604

Contact person Jesse W. Moffett

Title Executive Director

Telephone number (540) 722-3579

Is the applicant the owner or operator (or both) of the treatment works?

☒ owner ☐ operator

Indicate whether correspondence regarding this permit should be directed to the facility or the applicant.

☐ facility ☒ applicant

A.3. Existing Environmental Permits. Provide the permit number of any existing environmental permits that have been issued to the treatment works (include state-issued permits).

NPDES VA0065552 PSD _____

UIC _____ Other _____

RCRA _____ Other _____

A.4. Collection System Information. Provide information on municipalities and areas served by the facility. Provide the name and population of each entity and, if known, provide information on the type of collection system (combined vs. separate) and its ownership (municipal, private, etc.).

Name	Population Served	Type of Collection System	Ownership
<u>Frederick County</u>	<u>23,400</u>	<u>Separate</u>	<u>Municipal</u>
<u>City of Winchester</u>	<u>25,200</u>	<u>Separate</u>	<u>Municipal</u>
_____	_____	_____	_____
Total population served	<u>48,600</u>		

a. Is the treatment works located in Indian Country?

Yes ☐ No ☒

☒ Yes ☐ No

b. Does the treatment works discharge to a receiving water that is either in Indian Country or that is upstream from (and eventually flows through) Indian Country?

_____ Yes ☒ No

☒ Yes ☐ No

A.6. Flow. Indicate the design flow rate of the treatment plant (i.e., the wastewater flow rate that the plant was built to handle). Also provide the average daily flow rate and maximum daily flow rate for each of the last three years. Each year's data must be based on a 12-month time period with the 12th month of "this year" occurring no more than three months prior to this application submittal.

a. Design flow rate 12.6 mgd

Two Years Ago

Last YearThis Year

b. Annual average daily flow rate	6.386	6.695	7.574	mgd
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c. Maximum daily flow rate 19.81 17.38 22.42 mgd

A.7. Collection System. Indicate the type(s) of collection system(s) used by the treatment plant. Check all that apply. Also estimate the percent contribution (by miles) of each.

<u>✓</u>	Separate sanitary sewer	100	%
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	Combined storm and sanitary sewer	%

a. Does the treatment works discharge effluent to waters of the U.S.?

✓ Yes No

Yes _____ No _____

If yes, list how many of each of the following types of discharge points the treatment works uses:

i. Discharges of treated effluent	1
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ii. Discharges of untreated or partially treated effluent	0
---	---

iii. Combined sewer overflow points	<u>0</u>
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iv. Constructed emergency overflows (prior to the headworks) 0

v. Other 0

b. Does the treatment works discharge effluent to basins, ponds, or other surface impoundments that do not have outlets for discharge to waters of the U.S.? _____ Yes ✓ No

Yes ☒ No

☒ No

If yes, provide the following for each surface impoundment:

Location: _____

Annual average daily volume discharged to surface impoundment(s) _____ mgd

Is discharge _____ continuous or _____ intermittent?

c. Does the treatment works land-apply treated wastewater? Yes ☒ No

Yes ✓ No

✓ No

If yes, provide the following for each land application site:

Location: _____

Number of acres: _____

Annual average daily volume applied to site: _____ Mgd

Is land application _____ continuous or _____ intermittent?

d. Does the treatment works discharge or transport treated or untreated wastewater to another treatment works? _____ Yes ✓ No

Yes ☒ No

☒ No

FACILITY NAME AND PERMIT NUMBER:
Opequon Water Reclamation Facility VA0065552

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If yes, describe the mean(s) by which the wastewater from the treatment works is discharged or transported to the other treatment works (e.g., tank truck, pipe).

If transport is by a party other than the applicant, provide:

Transporter name: _____

Mailing Address: _____

Contact person: _____

Title: _____

Telephone number: _____

For each treatment works that receives this discharge, provide the following:

Name: _____

Mailing Address: _____

Contact person: _____

Title: _____

Telephone number: _____

If known, provide the NPDES permit number of the treatment works that receives this discharge. _____

Provide the average daily flow rate from the treatment works into the receiving facility. _____ NA mgd

- e. Does the treatment works discharge or dispose of its wastewater in a manner not included in A.8.a through A.8.d above (e.g., underground percolation, well injection)? _____ Yes ☒ No

If yes, provide the following for each disposal method:

Description of method (including location and size of site(s) if applicable):

Annual daily volume disposed of by this method: _____

Is disposal through this method _____ continuous or _____ intermittent?

FACILITY NAME AND PERMIT NUMBER:
Opequon Water Reclamation Facility VA0065552

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WASTEWATER DISCHARGES:

If you answered "yes" to question A.8.a, complete questions A.9 through A.12 once for each outfall (including bypass points) through which effluent is discharged. Do not include information on combined sewer overflows in this section. If you answered "no" to question A.8.a, go to Part B, "Additional Application Information for Applicants with a Design Flow Greater than or Equal to 0.1 mgd."

A.9. Description of Outfall.

- a. Outfall number 001
- b. Location 22603
(City or town, if applicable) (Zip Code)
Frederick County Virginia
(County) (State)
39 deg 10' 36" 78 deg 04' 29"
(Latitude) (Longitude)
- c. Distance from shore (if applicable) N/A ft.
- d. Depth below surface (if applicable) N/A ft.
- e. Average daily flow rate 7.574 mgd
- f. Does this outfall have either an intermittent or a periodic discharge? Yes ☒ No (go to A.9.g.)
- If yes, provide the following information:
- Number of times per year discharge occurs: _____
- Average duration of each discharge: _____
- Average flow per discharge: _____ mgd
- Months in which discharge occurs: _____
- g. Is outfall equipped with a diffuser? Yes ☒ No

A.10. Description of Receiving Waters.

- a. Name of receiving water Opequon Creek
- b. Name of watershed (if known) Opequon, Waterbody VAV-B08R
- United States Soil Conservation Service 14-digit watershed code (if known): Not Known
- c. Name of State Management/River Basin (if known): Potomac
- United States Geological Survey 8-digit hydrologic cataloging unit code (if known): 02070004
- d. Critical low flow of receiving stream (if applicable):
acute _____ cfs chronic _____ cfs
- e. Total hardness of receiving stream at critical low flow (if applicable): N/A mg/l of CaCO₃

FACILITY NAME AND PERMIT NUMBER:
Opequon Water Reclamation Facility VA0065552

Form Approved 1/14/99
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A.11. Description of Treatment.

a. What levels of treatment are provided? Check all that apply.

☒ Primary ☒ Secondary
☒ Advanced ☒ Other. Describe: Enhanced Nutrient Removal for N and P

b. Indicate the following removal rates (as applicable):

Design BOD₅ removal or Design CBOD₅ removal 97 %
Design SS removal 88 %
Design P removal 95 %
Design N removal 92 %
Other _____ %

c. What type of disinfection is used for the effluent from this outfall? If disinfection varies by season, please describe.

Disinfection is obtained by addition of sodium hypochlorite. Dechlorination by addition of sodium bisulfite

If disinfection is by chlorination, is dechlorination used for this outfall? ☒ Yes ☐ No

d. Does the treatment plant have post aeration? ☒ Yes ☐ No

A.12. Effluent Testing Information. All Applicants that discharge to waters of the US must provide effluent testing data for the following parameters. Provide the indicated effluent testing required by the permitting authority for each outfall through which effluent is discharged. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. At a minimum, effluent testing data must be based on at least three samples and must be no more than four and one-half years apart.

Outfall number: 001

PARAMETER	MAXIMUM DAILY VALUE		AVERAGE DAILY VALUE		
	Value	Units	Value	Units	Number of Samples
pH (Minimum)	6.86	s.u.			
pH (Maximum)	8.83	s.u.			
Flow Rate	22.42	MGD	6.778	MGD	1461
Temperature (Winter)	20.8	deg C	14.08	deg C	693
Temperature (Summer)	29.8	deg C	21.25	deg C	732

* For pH please report a minimum and a maximum daily value

POLLUTANT	MAXIMUM DAILY DISCHARGE		AVERAGE DAILY DISCHARGE			ANALYTICAL METHOD	ML / MDL
	Conc.	Units	Conc.	Units	Number of Samples		

CONVENTIONAL AND NONCONVENTIONAL COMPOUNDS.

BIOCHEMICAL OXYGEN DEMAND (Report one)	BOD-5	17.35	mg/l	2.513	mg/l	732	5210B	5.0 mg/l
	CBOD-5	11.20	mg/l	1.698	mg/l	258	5210B	5.0 mg/l
FECAL COLIFORM (e-coli)		2419	n/cmL	3.34	n/cmL	616	9222D	
TOTAL SUSPENDED SOLIDS (TSS)		75.00	mg/l	2.04	mg/l	440	2540D	1.0 mg/l

END OF PART A.

REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE

FACILITY NAME AND PERMIT NUMBER:

Opequon Water Reclamation Facility VA0065552

Form Approved 1/14/99
OMB Number 2040-0086

BASIC APPLICATION INFORMATION

PART B. ADDITIONAL APPLICATION INFORMATION FOR APPLICANTS WITH A DESIGN FLOW GREATER THAN OR EQUAL TO 0.1 MGD (100,000 gallons per day).

All applicants with a design flow rate \geq 0.1 mgd must answer questions B.1 through B.6. All others go to Part C (Certification).

B.1. Inflow and Infiltration. Estimate the average number of gallons per day that flow into the treatment works from inflow and/or infiltration.

1,125,000 gpd

Briefly explain any steps underway or planned to minimize inflow and infiltration.

City of Winchester and Frederick County Sanitation Authority have on going program for I/I reduction.

B.2. Topographic Map. Attach to this application a topographic map of the area extending at least one mile beyond facility property boundaries. This map must show the outline of the facility and the following information. (You may submit more than one map if one map does not show the entire area.)

- a. The area surrounding the treatment plant, including all unit processes.
- b. The major pipes or other structures through which wastewater enters the treatment works and the pipes or other structures through which treated wastewater is discharged from the treatment plant. Include outfalls from bypass piping, if applicable.
- c. Each well where wastewater from the treatment plant is injected underground.
- d. Wells, springs, other surface water bodies, and drinking water wells that are: 1) within 1/4 mile of the property boundaries of the treatment works, and 2) listed in public record or otherwise known to the applicant.
- e. Any areas where the sewage sludge produced by the treatment works is stored, treated, or disposed.
- f. If the treatment works receives waste that is classified as hazardous under the Resource Conservation and Recovery Act (RCRA) by truck, rail, or special pipe, show on the map where that hazardous waste enters the treatment works and where it is treated, stored, and/or disposed.

B.3. Process Flow Diagram or Schematic. Provide a diagram showing the processes of the treatment plant, including all bypass piping and all backup power sources or redundancy in the system. Also provide a water balance showing all treatment units, including disinfection (e.g., chlorination and dechlorination). The water balance must show daily average flow rates at influent and discharge points and approximate daily flow rates between treatment units. Include a brief narrative description of the diagram.

B.4. Operation/Maintenance Performed by Contractor(s).

Are any operational or maintenance aspects (related to wastewater treatment and effluent quality) of the treatment works the responsibility of a contractor? ☒ Yes ☐ No

If yes, list the name, address, telephone number, and status of each contractor and describe the contractor's responsibilities (attach additional pages if necessary).

Name: see attached list

Mailing Address: _____

Telephone Number: _____

Responsibilities of Contractor: _____

B.5. Scheduled Improvements and Schedules of Implementation. Provide information on any uncompleted implementation schedule or uncompleted plans for improvements that will affect the wastewater treatment, effluent quality, or design capacity of the treatment works. If the treatment works has several different implementation schedules or is planning several improvements, submit separate responses to question B.5 for each. (If none, go to question B.6.)

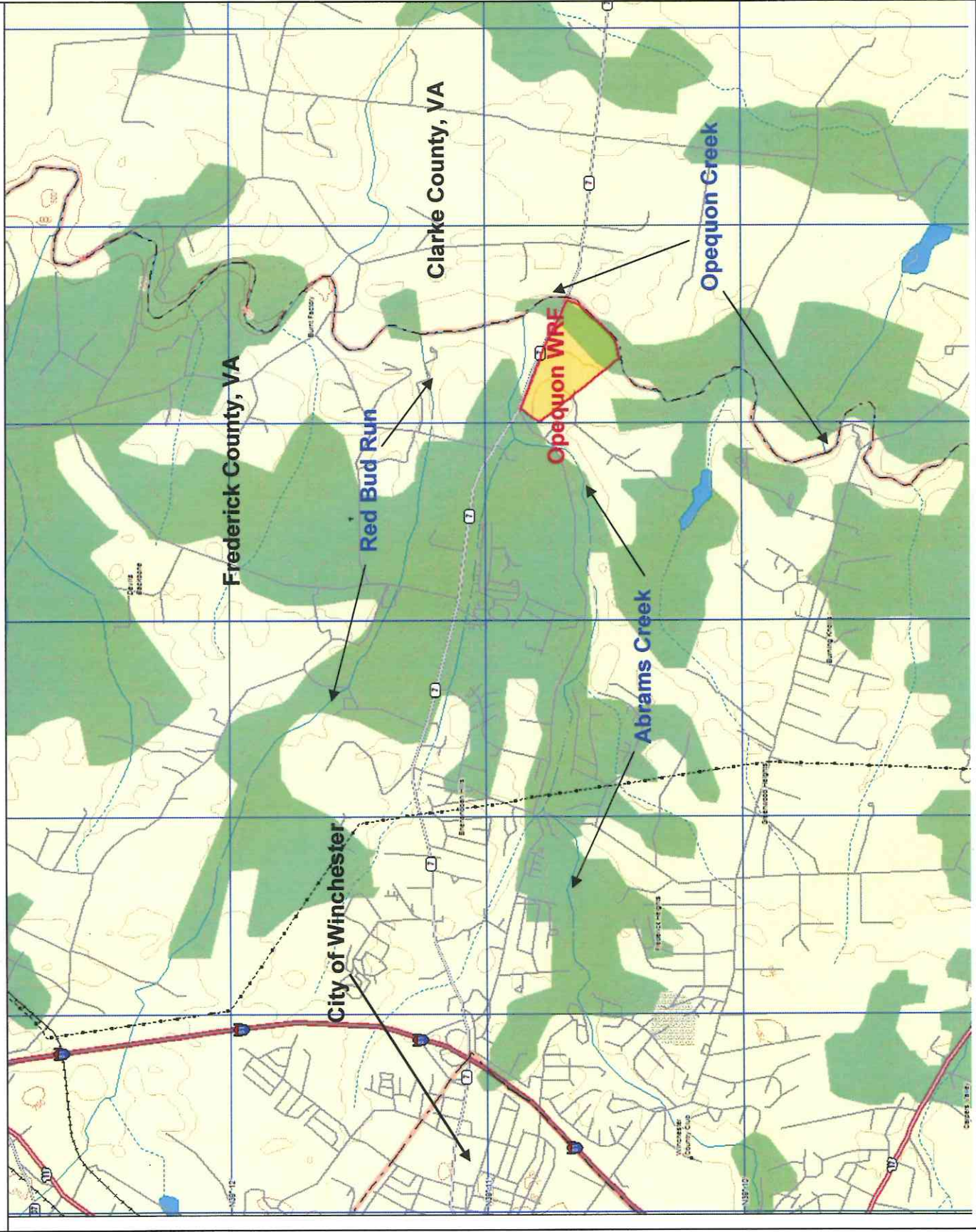
- a. List the outfall number (assigned in question A.9) for each outfall that is covered by this implementation schedule.

001

- b. Indicate whether the planned improvements or implementation schedule are required by local, State, or Federal agencies.

☒ Yes ☐ No

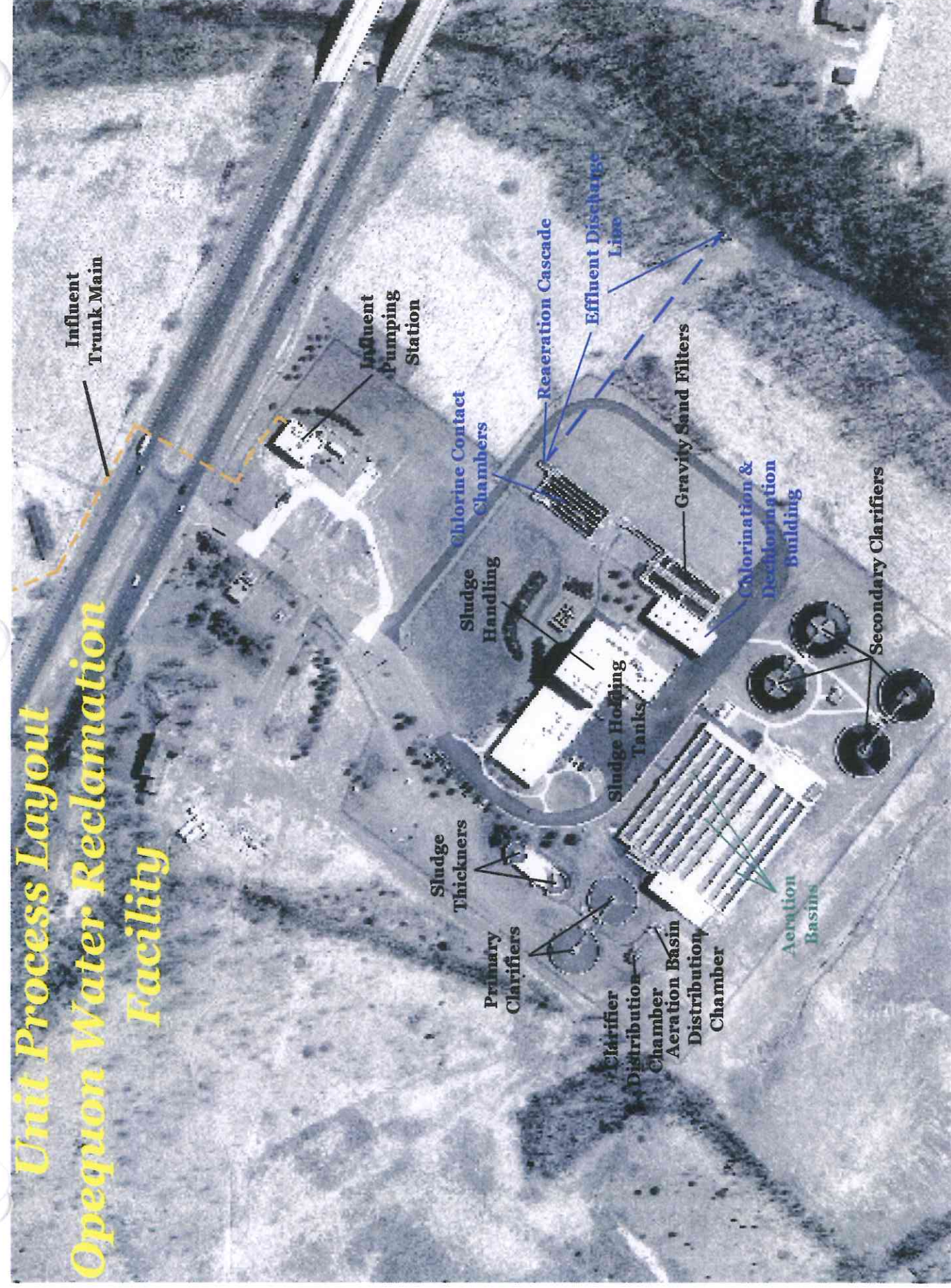
Topographic Map – Opequon Water Reclamation Facility



Property Boundaries Opequon Water Reclamation Facility



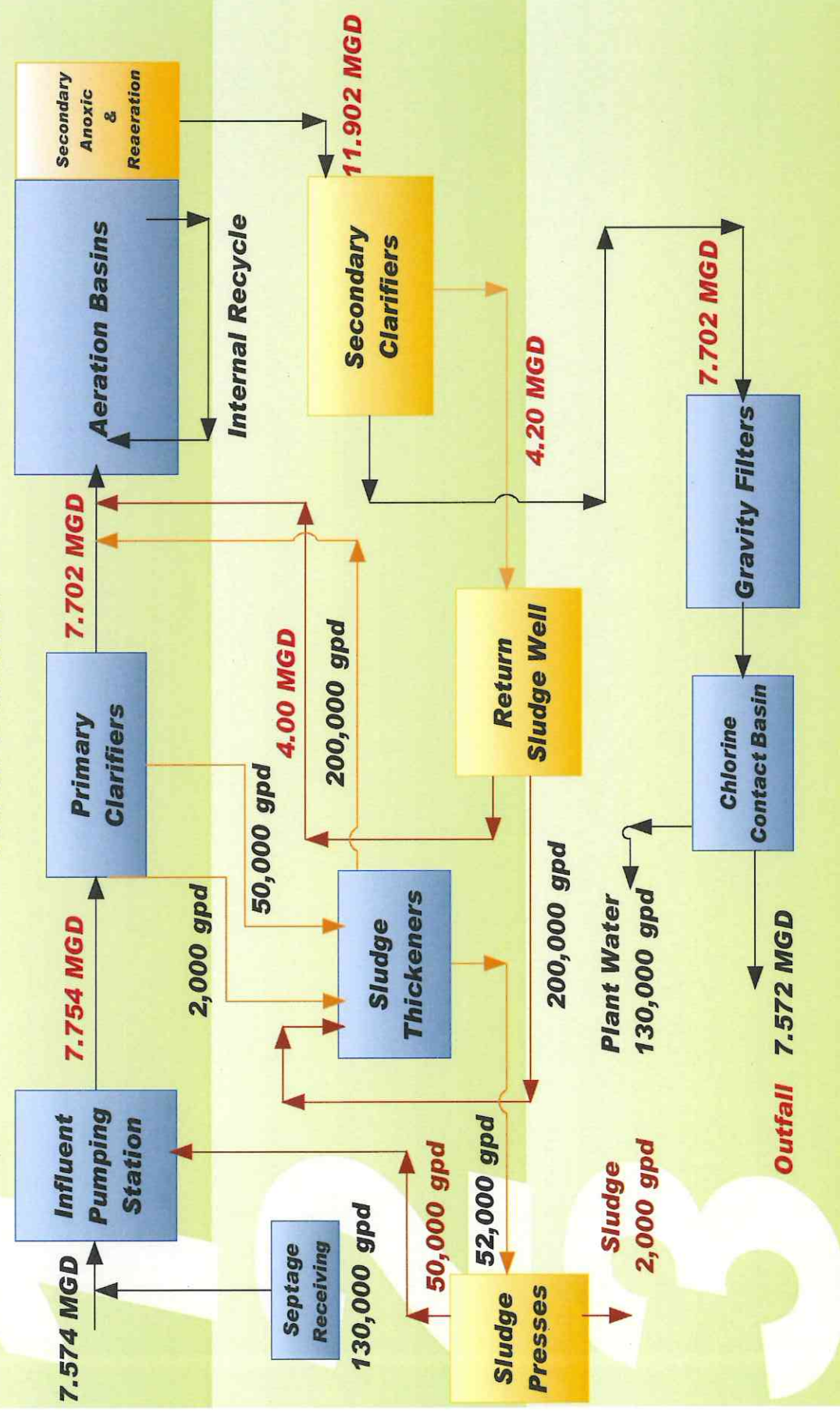
Unit Process Layout Opequon Water Reclamation Facility

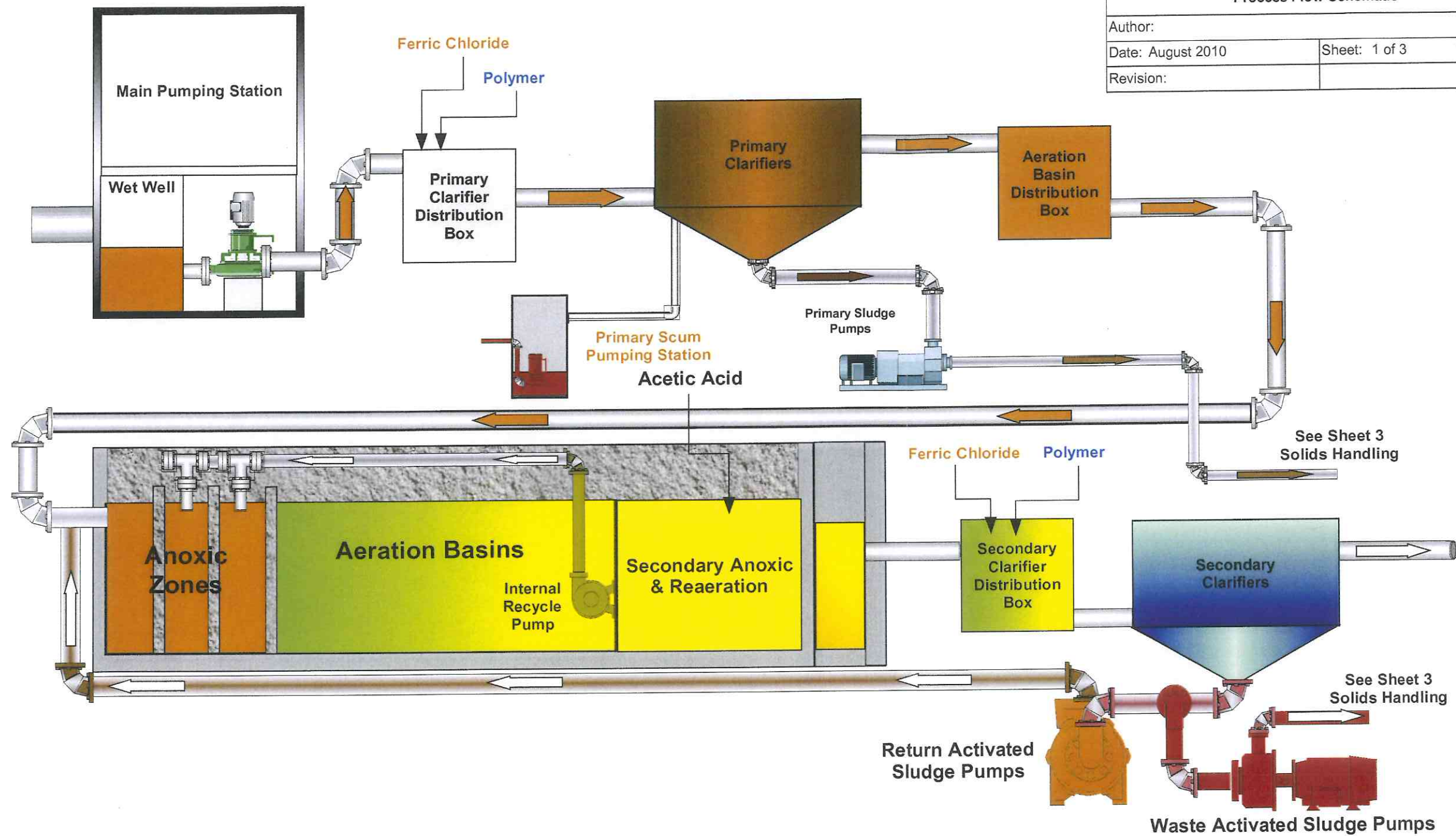


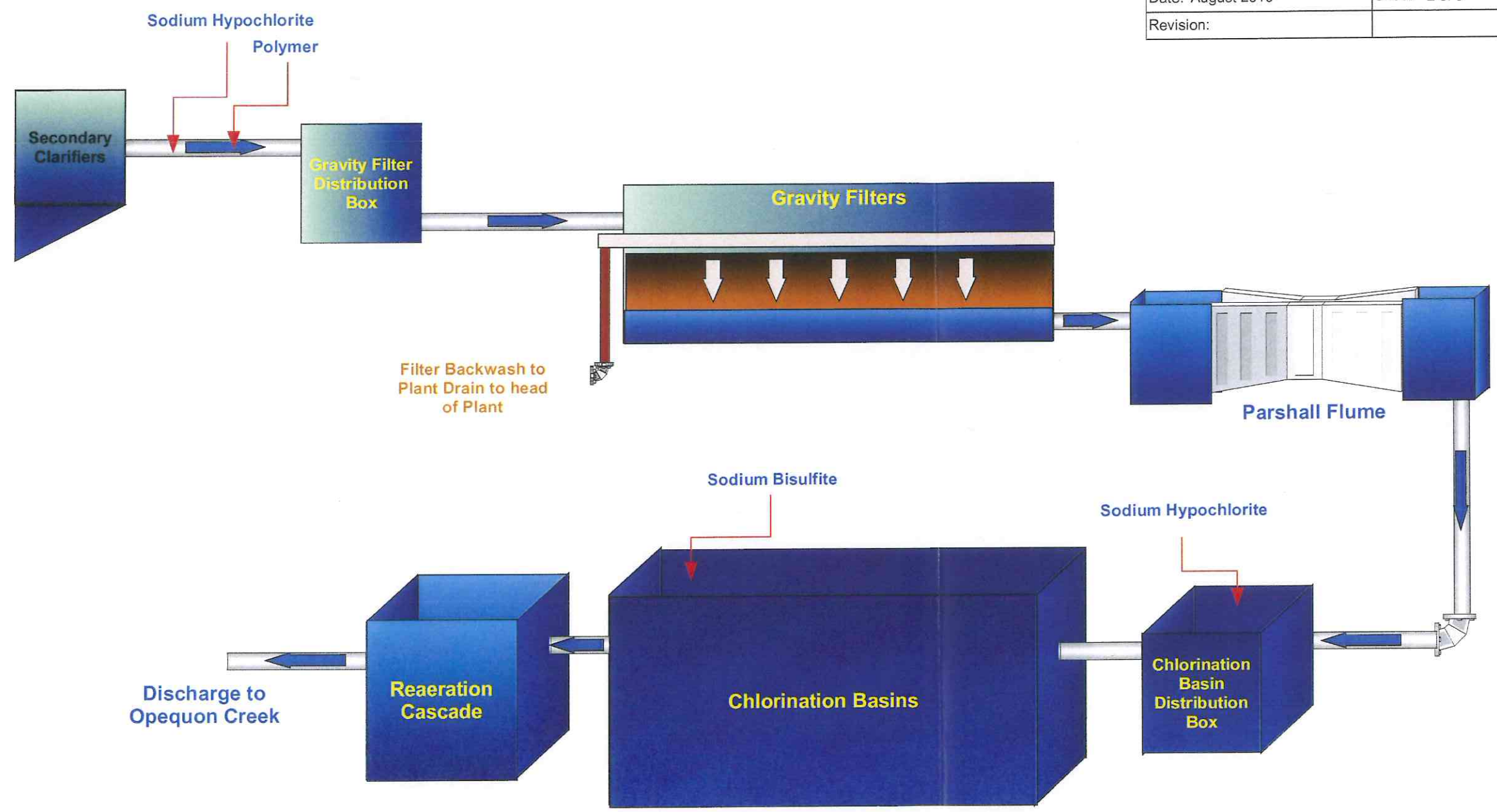
Process Flow Diagram

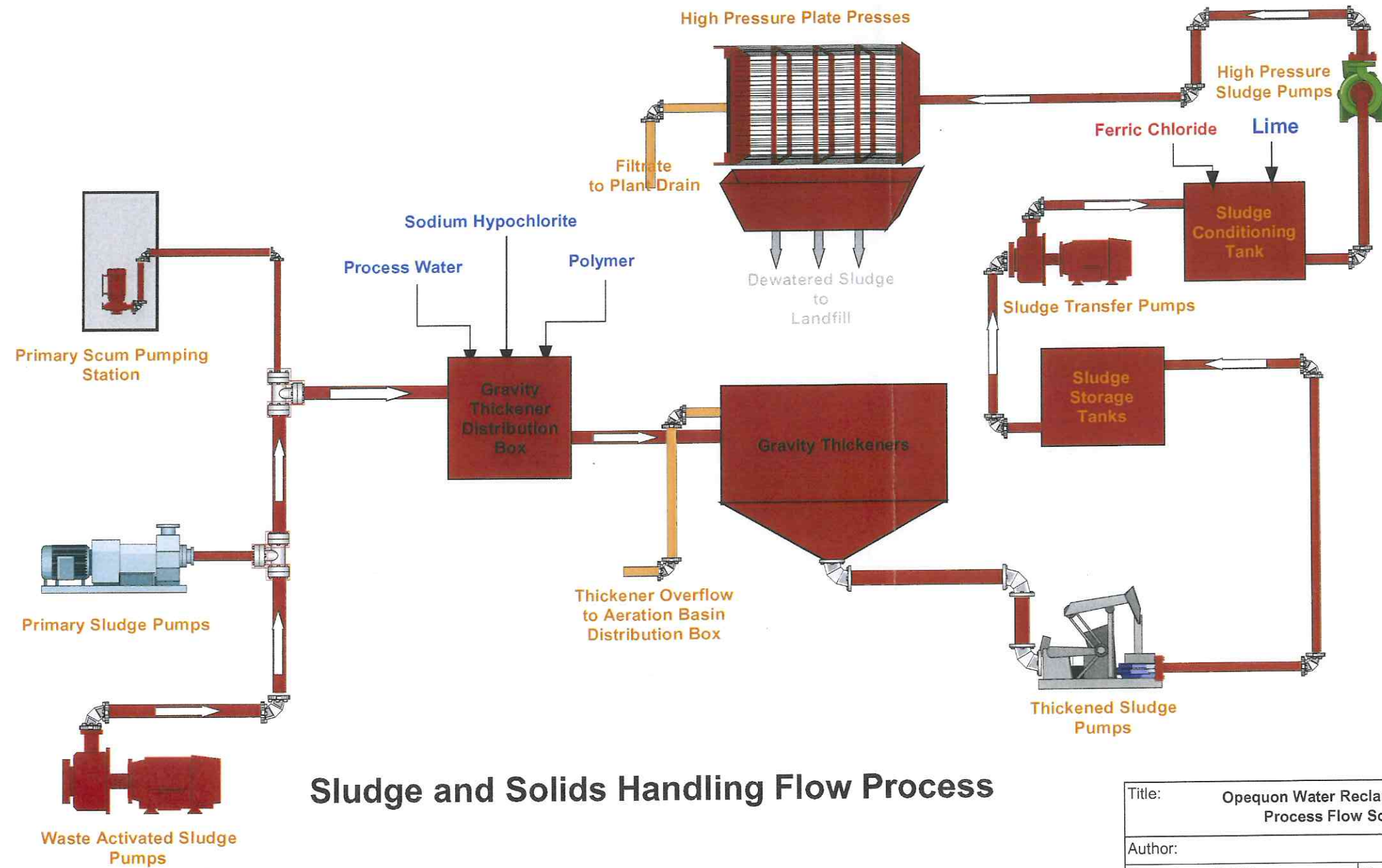
Opequon Water Reclamation Facility

Water Balance









Sludge and Solids Handling Flow Process

Title:	Opequon Water Reclamation Facility Process Flow Schematic	
Author:		
Date:	August 2010	Sheet: 3 of 3
Revision:		

Contractors performing maintenance or operational functions related to the
Opequon Water Reclamation Facility (Item B.4. of Part B of Application)

Abel Pumps
79 N Industrial Park
Sewickley, PA 15143-2339
412-741-3222
Press feed pump parts repairs and service

Coastal Bioanalysts
6400 Enterprise Ct.
Gloucester, VA 23061
804-694-8285
Toxic Monitoring

Environmental Systems Services
218 North Main Street
Culpeper, VA 22701
540-825-6660
Contract Lab

Instrulogic
PO Box 468
Round Hill, VA 20142-0468
540-338-2222
Flow meter calibration — press control system service

Miller & Anderson
4150 Martinsburg Pike
Clearbrook, VA 22624
540-667-4757
Electrical, HVAC service

Substation Test Company
4110 Forrestville Rd.
Forrestville, MD 20747
301-967-3500
Main power switchgear, high voltage breaker, and transformer service

Universal Filtration
703 Bascomb Commercial Park
Suite 103
Woodstock, GA 30189
770-592-7564
Filter press parts and service

FACILITY NAME AND PERMIT NUMBER:
Opequon Water Reclamation Facility VA0065552

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c

If the answer to B.5.b is "Yes," briefly describe, including new maximum daily inflow rate (if applicable).
The facility is undergoing expansion and treatment enhancements (CTO by December 2010)

d

Provide dates imposed by any compliance schedule or any actual dates of completion for the implementation steps listed below, as applicable. For improvements planned independently of local, State, or Federal agencies, indicate planned or actual completion dates, as applicable. Indicate dates as accurately as possible.

Implementation Stage	Schedule MM / DD / YYYY	Actual Completion MM / DD / YYYY
- Begin construction	/ /	/ /
- End construction	/ /	/ /
- Begin discharge	/ /	/ /
- Attain operational level	/ /	/ /

e

Have appropriate permits/clearances concerning other Federal/State requirements been obtained? Yes No
Describe briefly:

B.6. EFFLUENT TESTING DATA (GREATER THAN 0.1 MGD ONLY).

Applicants that discharge to waters of the US must provide effluent testing data for the following parameters. Provide the indicated effluent testing required by the permitting authority for each outfall through which effluent is discharged. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. At a minimum, effluent testing data must be based on at least three pollutant scans and must be no more than four and one-half years old.

Outfall Number: 001

POLLUTANT	MAXIMUM DAILY DISCHARGE		AVERAGE DAILY DISCHARGE			ANALYTICAL METHOD	ML / MDL
	Conc.	Units	Conc.	Units	Number of Samples		
CONVENTIONAL AND NONCONVENTIONAL COMPOUNDS.							
AMMONIA (as N)	8.45	mg/l	0.42	mg/l	839	1500NH3F	0.20 mg/l
CHLORINE (TOTAL RESIDUAL, TRC)	.11	mg/l	0.00	mg/l	1460	4500-CL-D	0.1 mg/l
DISSOLVED OXYGEN	13.06	mg/l	9.21	mg/l	1460	4500-OG	0.01 mg/l
TOTAL KJELDAHL NITROGEN (TKN)	9.61	mg/l	1.46	mg/l	236	4500Norg	0.5 mg/l
NITRATE PLUS NITRITE NITROGEN	6.42	mg/l	3.03	mg/l	241	4500NO3E	0.5 mg/l
OIL and GREASE	N/A	mg/l	N/A	mg/l			
PHOSPHORUS (Total)	3.97	mg/l	.35	mg/l	233	4500PBE	0.10 mg/l
TOTAL DISSOLVED SOLIDS (TDS)	N/A	mg/l	N/A	mg/l			
OTHER							

END OF PART B.

REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE

EPA Form 3510-2A (Rev. 1-99). Replaces EPA forms 7550-6 & 7550-22.

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FACILITY NAME AND PERMIT NUMBER:
Opequon Water Reclamation Facility VA0065552

Form Approved 1/14/99
OMB Number 2040-0086

BASIC APPLICATION INFORMATION

PART C. CERTIFICATION

All applicants must complete the Certification Section. Refer to instructions to determine who is an officer for the purposes of this certification. All applicants must complete all applicable sections of Form 2A, as explained in the Application Overview. Indicate below which parts of Form 2A you have completed and are submitting. By signing this certification statement, applicants confirm that they have reviewed Form 2A and have completed all sections that apply to the facility for which this application is submitted.

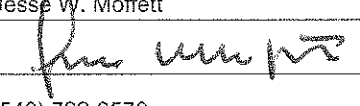
Indicate which parts of Form 2A you have completed and are submitting:

<input checked="" type="checkbox"/> Basic Application Information packet	Supplemental Application Information packet:
	<input checked="" type="checkbox"/> Part D (Expanded Effluent Testing Data)
	<input checked="" type="checkbox"/> Part E (Toxicity Testing: Biomonitoring Data)
	<input checked="" type="checkbox"/> Part F (Industrial User Discharges and RCRA/CERCLA Wastes)
	<input type="checkbox"/> Part G (Combined Sewer Systems)

ALL APPLICANTS MUST COMPLETE THE FOLLOWING CERTIFICATION.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name and official title Jesse W. Moffett

Signature 

Telephone number (540) 722-3579

Date signed 8/17/10

Upon request of the permitting authority, you must submit any other information necessary to assess wastewater treatment practices at the treatment works or identify appropriate permitting requirements.

SEND COMPLETED FORMS TO:

SECTION 2

SUPPLEMENTAL APPLICATION INFORMATION

PART D, E AND F

Frederick-Winchester Service Authority

*Post Office Box 43
Winchester, Virginia 22604*

*Office: 107 North Kent Street
County Office Complex
Winchester, Virginia 22601
1-540-722-3579*

August 12, 2010

Trevor Wallace
Environmental Engineer
Virginia Department of Environmental Quality
Valley Regional Office
4411 Early Road
P.O. Box 3000
Harrisonburg, VA 22801

Dear Mr. Wallace:

**Reference: Waiver Requests for Reissuance of VPDES Permit No. VA0065552
Opequon Water Reclamation Facility**

In proceeding with the complying of information and data for the reissuance permit request for the Opequon Water Reclamation Facility we are asking for the following waivers.

- Under section B.6 of Part B of the Form 2A application there are data requests made for the pollutants of oil and grease and total dissolved solid (TDS). We are requesting a waiver from reporting this information because of the lack of data for these pollutants. No analysis for these pollutants was conducted since the reissuance of the permit in 2001. From our review of past testing, analysis on the effluent has never been conducted for these pollutants.
- We are requesting a waiver from the requested scans called for in Part D - Expanded Effluent Testing Data of the permit application. At the present time, the Opequon Water Reclamation Facility is nearing the completion of an expansion and upgrade which will greatly enhance the existing treatment process. It is anticipated that the facility will receive a Certificate to Operate (CTO) at its expanded capacity by the end of 2010. Under the existing permit with the issuance of that CTO we will be required to conduct a complete scan as called for in Part D within a year of the issuance and hence we believe a waiver is appropriate.

If there should be any additional information required for these waiver requests please feel free to contact me directly at 1-540-722-3579.

Sincerely,



Jesse W. Moffett
Executive Director
Frederick-Winchester Service Authority



"Maintaining and Promoting the Values of the Community through Environmental Stewardship"

FACILITY NAME AND PERMIT NUMBER:
Opequon Water Reclamation Facility VA0065552

Form Approved 1/14/99
OMB Number 2040-0086

SUPPLEMENTAL APPLICATION INFORMATION

PART D. EXPANDED EFFLUENT TESTING DATA

Refer to the directions on the cover page to determine whether this section applies to the treatment works.

Effluent Testing: 1.0 mgd and Pretreatment Treatment Works. If the treatment works has a design flow greater than or equal to 1.0 mgd or it has (or is required to have) a pretreatment program, or is otherwise required by the permitting authority to provide the data, then provide effluent testing data for the following pollutants. Provide the indicated effluent testing information and any other information required by the permitting authority for each outfall through which effluent is discharged. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analyses conducted using 40 CFR Part 136 methods. In addition, these data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136. Indicate in the blank rows provided below any data you may have on pollutants not specifically listed in this form. At a minimum, effluent testing data must be based on at least three pollutant scans and must be no more than four and one-half years old.

Outfall number: (Complete once for each outfall discharging effluent to waters of the United States.)

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/ MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	Number of Samples		
METALS (TOTAL RECOVERABLE), CYANIDE, PHENOLS, AND HARDNESS.											
ANTIMONY											
ARSENIC											
BERYLLIUM											
CADMIUM											
CHROMIUM											
COPPER											
LEAD											
MERCURY											
NICKEL											
SELENIUM											
SILVER											
THALLIUM											
ZINC											
CYANIDE											
TOTAL PHENOLIC COMPOUNDS											
HARDNESS (AS CaCO ₃)											
Use this space (or a separate sheet) to provide information on other metals requested by the permit writer.											

FACILITY NAME AND PERMIT NUMBER:
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Outfall number: _____ (Complete once for each outfall discharging effluent to waters of the United States.)											
POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/ MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	Number of Samples		
VOLATILE ORGANIC COMPOUNDS.											
ACROLEIN											
ACRYLONITRILE											
BENZENE											
BROMOFORM											
CARBON TETRACHLORIDE											
CLOROBENZENE											
CHLORODIBROMO-METHANE											
CHLOROETHANE											
2-CHLORO-ETHYLVINYL ETHER											
CHLOROFORM											
DICHLOROBROMO-METHANE											
1,1-DICHLOROETHANE											
1,2-DICHLOROETHANE											
TRANS-1,2-DICHLORO-ETHYLENE											
1,1-DICHLOROETHYLENE											
1,2-DICHLOROPROPANE											
1,3-DICHLORO-PROPYLENE											
ETHYLBENZENE											
METHYL BROMIDE											
METHYL CHLORIDE											
METHYLENE CHLORIDE											
1,1,2,2-TETRACHLORO-ETHANE											
ETRACHLORO-ETHYLENE											
TOLUENE											

FACILITY NAME AND PERMIT NUMBER:
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Outfall number: _____ (Complete once for each outfall discharging effluent to waters of the United States.)

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/ MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	Number of Samples		
1,1,1-TRICHLOROETHANE											
1,1,2-TRICHLOROETHANE											
TRICHLORETHYLENE											
VINYL CHLORIDE											

Use this space (or a separate sheet) to provide information on other volatile organic compounds requested by the permit writer.

--	--	--	--	--	--	--	--	--	--	--	--

ACID-EXTRACTABLE COMPOUNDS

P-CHLORO-M-CRESOL											
2-CHLOROPHENOL											
2,4-DICHLOROPHENOL											
2,4-DIMETHYLPHENOL											
4,6-DINITRO-O-CRESOL											
2,4-DINITROPHENOL											
2-NITROPHENOL											
4-NITROPHENOL											
PENTACHLOROPHENOL											
PHENOL											
2,4,6-TRICHLOROPHENOL											

Use this space (or a separate sheet) to provide information on other acid-extractable compounds requested by the permit writer.

--	--	--	--	--	--	--	--	--	--	--	--

BASE-NEUTRAL COMPOUNDS.

ACENAPHTHENE											
ACENAPHTHYLENE											
ANTHRACENE											
BENZIDINE											
BENZO(A)ANTHRACENE											
BENZO(A)PYRENE											

FACILITY NAME AND PERMIT NUMBER:
Opequon Water Reclamation Facility VA0065552

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Outfall number: _____ (Complete once for each outfall discharging effluent to waters of the United States.)

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/ MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	Number of Samples		
3,4 BENZO-FLUORANTHENE											
BENZO(GH)PERYLENE											
BENZO(K)FLUORANTHENE											
BIS (2-CHLOROETHOXY) METHANE											
BIS (2-CHLOROETHYL)-ETHER											
BIS (2-CHLOROISO-PROPYL) ETHER											
BIS (2-ETHYLHEXYL) PHTHALATE											
4-BROMOPHENYL PHENYL ETHER											
BUTYL BENZYL PHTHALATE											
2-CHLORONAPHTHALENE											
4-CHLORPHENYL PHENYL ETHER											
CHRYSENE											
DI-N-BUTYL PHTHALATE											
DI-N-OCTYL PHTHALATE											
DIBENZO(A,H) ANTHRACENE											
1,2-DICHLOROBENZENE											
1,3-DICHLOROBENZENE											
1,4-DICHLOROBENZENE											
3,3-DICHLOROBENZIDINE											
DIETHYL PHTHALATE											
DIMETHYL PHTHALATE											
2,4-DINITROTOLUENE											
2,6-DINITROTOLUENE											
1,2-DIPHENYLHYDRAZINE											

FACILITY NAME AND PERMIT NUMBER:
Opequon Water Reclamation Facility VA0065552

Form Approved 1/14/99
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Outfall number: _____ (Complete once for each outfall discharging effluent to waters of the United States.)											
POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/ MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	Number of Samples		
FLUORANTHENE											
FLUORENE											
HEXACHLOROBENZENE											
HEXACHLOROBUTADIENE											
HEXACHLOROCYCLO-PENTADIENE											
HEXACHLOROETHANE											
INDENO(1,2,3-CD)PYRENE											
ISOPHORONE											
NAPHTHALENE											
NITROBENZENE											
N-NITROSODI-N-PROPYLAMINE											
N-NITROSODI- METHYLAMINE											
N-NITROSODI-PHENYLAMINE											
PHENANTHRENE											
PYRENE											
1,2,4-TRICHLOROBENZENE											
Use this space (or a separate sheet) to provide information on other base-neutral compounds requested by the permit writer.											
Use this space (or a separate sheet) to provide information on other pollutants (e.g., pesticides) requested by the permit writer.											
END OF PART D. REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE											

FACILITY NAME AND PERMIT NUMBER:

Opequon Water Reclamation Facility VA0065552

Form Approved 1/14/99
OMB Number 2040-0086

SUPPLEMENTAL APPLICATION INFORMATION

PART E. TOXICITY TESTING DATA

POTWs meeting one or more of the following criteria must provide the results of whole effluent toxicity tests for acute or chronic toxicity for each of the facility's discharge points: 1) POTWs with a design flow rate greater than or equal to 1.0 mgd; 2) POTWs with a pretreatment program (or those that are required to have one under 40 CFR Part 403); or 3) POTWs required by the permitting authority to submit data for these parameters.

- At a minimum, these results must include quarterly testing for a 12-month period within the past 1 year using multiple species (minimum of two species), or the results from four tests performed at least annually in the four and one-half years prior to the application, provided the results show no appreciable toxicity, and testing for acute and/or chronic toxicity, depending on the range of receiving water dilution. Do not include information on combined sewer overflows in this section. All information reported must be based on data collected through analysis conducted using 40 CFR Part 136 methods. In addition, this data must comply with QA/QC requirements of 40 CFR Part 136 and other appropriate QA/QC requirements for standard methods for analytes not addressed by 40 CFR Part 136.
- In addition, submit the results of any other whole effluent toxicity tests from the past four and one-half years. If a whole effluent toxicity test conducted during the past four and one-half years revealed toxicity, provide any information on the cause of the toxicity or any results of a toxicity reduction evaluation, if one was conducted.
- If you have already submitted any of the information requested in Part E, you need not submit it again. Rather, provide the information requested in question E.4 for previously submitted information. If EPA methods were not used, report the reasons for using alternate methods. If test summaries are available that contain all of the information requested below, they may be submitted in place of Part E.

If no biomonitoring data is required, do not complete Part E. Refer to the Application Overview for directions on which other sections of the form to complete.

E.1. Required Tests.

Indicate the number of whole effluent toxicity tests conducted in the past four and one-half years.

6 chronic 2 acute

E.2. Individual Test Data. Complete the following chart for each whole effluent toxicity test conducted in the last four and one-half years. Allow one column per test (where each species constitutes a test). Copy this page if more than three tests are being reported.

Test number: Test number: Test number:

a. Test information.

Test species & test method number			
Age at initiation of test			
Outfall number	Toxicity Monitoring Summary Reports attached along with		
Dates sample collected	accompanying Report of Analysis for each test conducted		
Date test started			
Duration			

b. Give toxicity test methods followed.

Manual title			
Edition number and year of publication			
Page number(s)			

c. Give the sample collection method(s) used. For multiple grab samples, indicate the number of grab samples used.

24-Hour composite			
Grab			

d. Indicate where the sample was taken in relation to disinfection. (Check all that apply for each)

Before disinfection			
After disinfection			
After dechlorination			

FACILITY NAME AND PERMIT NUMBER:
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Test number:_____				Test number:_____				Test number:_____			
e. Describe the point in the treatment process at which the sample was collected.											
Sample was collected:											
f. For each test, include whether the test was intended to assess chronic toxicity, acute toxicity, or both.											
Chronic toxicity											
Acute toxicity											
g. Provide the type of test performed.											
Static											
Static-renewal											
Flow-through											
h. Source of dilution water. If laboratory water, specify type; if receiving water, specify source.											
Laboratory water											
Receiving water											
i. Type of dilution water. If salt water, specify "natural" or type of artificial sea salts or brine used.											
Fresh water											
Salt water											
j. Give the percentage effluent used for all concentrations in the test series.											
k. Parameters measured during the test. (State whether parameter meets test method specifications)											
pH											
Salinity											
Temperature											
Ammonia											
Dissolved oxygen											
l. Test Results.											
Acute:											
Percent survival in 100% effluent			%			%			%		
LC ₅₀											
95% C.I.			%			%			%		
Control percent survival			%			%			%		
Other (describe)											

FACILITY NAME AND PERMIT NUMBER:
Opequon Water Reclamation Facility VA0065552

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Chronic:

NOEC	%	%	%
IC ₂₅	%	%	%
Control percent survival	%	%	%
Other (describe)			

m. Quality Control/Quality Assurance.

Is reference toxicant data available?			
Was reference toxicant test within acceptable bounds?			
What date was reference toxicant test run (MM/DD/YYYY)?			
Other (describe)			

E.3. Toxicity Reduction Evaluation.

Is the treatment works involved in a Toxicity Reduction Evaluation?

Yes

No

✓

If yes, describe:

E.4. Summary of Submitted Biomonitoring Test Information.

If you have submitted biomonitoring test information, or information regarding the cause of toxicity, within the past four and one-half years, provide the dates the information was submitted to the permitting authority and a summary of the results.

Date submitted:

(MM/DD/YYYY)

Summary of results: (see instructions)

END OF PART E.

REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE.

EPA Form 3510-2A (Rev. 1-99). Replaces EPA forms 7550-6 & 7550-22.

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FACILITY NAME: Opequon Water Reclamation Facility		Toxicity Monitoring Summary Report Opequon Water Reclamation Facility	
PERMIT NUMBER: VA0065552			

Test Species & test method number	C. dubia EPA 1002.0 & 2002.0 P. promelas EPA 1000.0 &2000.0	C. dubia EPA 1002.0 & 2002.0 P. promelas EPA 1000.0 &2000.0	C. dubia EPA 1002.0 & 2002.0 P. promelas EPA 1000.0 &2000.0
test results submitted with DMR	Annual Report	Annual Report	Annual Report
Outfall number	001	001	001
Dates sample collected	1/30-2/2/06	6/27/07	1/14-1/17/08
Date test started	1/31/06	6/28/07	1/15/08
Duration	7 days	2 days	8 days
b. Give the sample collection method(s) used. For multiple grab samples, indicate the number of grab samples used.			
24-Hour composite	3	1	1
Grab			
c. Indicate where the sample was taken in relation to disinfection. (Check all that apply for each.			
Before disinfection			
After disinfection			
After dechlorination	✓	✓	✓
d. Describe the point in the treatment process at which the sample was collected.			
Sample was collected:	following contact basin	following contact basin	following contact basin
e. For each test, include whether the test was intended to assess chronic toxicity, acute toxicity, or both			
Chronic toxicity	both		✓
Acute toxicity	both	✓	
f. Give the percentage effluent used for all concentrations in the test series.			
Chronic Test	15.5, 31, 62, 81, 100 %		15.5, 31, 62, 81, 100 %
Acute Test	6.3, 13, 25, 50, 100 %	6.3, 13, 25, 50, 100 %	
Acute:			
Percent survival in 100% effluent	100 %	100 %	
LC ₅₀	N/A %	N/A %	
95% C.I.	N/A %	N/A %	
Control percent survival	100 %	100 %	
Other (describe)			
Chronic:			
NOEC	100, 100 %	%	100, 100 %
IC ₂₅	N/A %	%	N/A, N/A %
Control percent survival	100 %	%	100 98%
Other (describe)	reporting % C. dubia, P. promelas	reporting % C. dubia, P. promelas	reporting % C. dubia, P. promelas

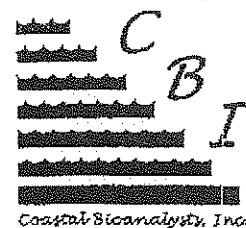
FACILITY NAME: Opequon Water Reclamation Facility	Toxicity Monitoring Summary Report
PERMIT NUMBER: VA0065552	Opequon Water Reclamation Facility

Test Species & test method number	P. promelas EPA 1000.0	C. dubia EPA 1002.0 P. promelas EPA 1000.0	C. dubia EPA 1002.0 P. promelas EPA 1000.0
test results submitted with DMR	Annual Report	4/10/10	7/10/10
Outfall number	001	001	001
Dates sample collected	1/5/09	1/4 – 1/7/10	4/5-4/8/10
Date test started	1/6/09	1/5/10	4/6/10
Duration	7 days	6 days	5 days
b. Give the sample collection method(s) used. For multiple grab samples, indicate the number of grab samples used.			
24-Hour composite	1	1	1
Grab			
c. Indicate where the sample was taken in relation to disinfection. (Check all that apply for each.			
Before disinfection			
After disinfection			
After dechlorination	✓	✓	✓
d. Describe the point in the treatment process at which the sample was collected.			
Sample was collected:	following contact basin	following contact basin	following contact basin
e. For each test, include whether the test was intended to assess chronic toxicity, acute toxicity, or both			
Chronic toxicity	✓	✓	✓
Acute toxicity			
f. Give the percentage effluent used for all concentrations in the test series.			
Chronic Test	16, 32, 64, 82, 100%	16, 32, 64, 82 100 %	16, 32, 64, 82 100 %
Acute Test			
Acute:			
Percent survival in 100% effluent			
LC ₅₀			
95% C.I.			
Control percent survival			
Other (describe)			
Chronic:			
NOEC	100 %	100, 100 %	100, 100 %
IC ₂₅	N/A	N/A,N/A	N/A,N/A
Control percent survival	88 %	90, 98 %	100 98 %
Other (describe)	reporting % P. promelas	reporting % C. dubia, P. promelas	reporting % C. dubia, P. promelas

FACILITY NAME: Opequon Water Reclamation Facility		Toxicity Monitoring Summary Report	
PERMIT NUMBER: VA0065552		Opequon Water Reclamation Facility	

Test Species & test method number	C. dubia EPA 1002.0 P. promelas EPA 1000.0		
test results submitted with DMR			
Outfall number	001		
Dates sample collected	7/6-7/10/10		
Date test started	7/7/10		
Duration	6 days		
b. Give the sample collection method(s) used. For multiple grab samples, indicate the number of grab samples used.			
24-Hour composite	1		
Grab			
c. Indicate where the sample was taken in relation to disinfection. (Check all that apply for each.			
Before disinfection			
After disinfection			
After dechlorination	✓		
d. Describe the point in the treatment process at which the sample was collected.			
Sample was collected:	following contact basin		
e. For each test, include whether the test was intended to assess chronic toxicity, acute toxicity, or both			
Chronic toxicity	✓		
Acute toxicity			
f. Give the percentage effluent used for all concentrations in the test series.			
Chronic Test	16, 32, 64, 82, 100 %		
Acute Test			
Acute:			
Percent survival in 100% effluent			
LC ₅₀			
95% C.I.			
Control percent survival			
Other (describe)			
Chronic:			
NOEC	100, 100 %		
IC ₂₅	N/A,N/A %		
Control percent survival	100, 100 %		
Other (describe)	reporting % C. dubia, P. promelas		

Client: City of Winchester
Project ID: WINC0601
Client Sample ID: Opequon WRF Outfall 001
Permit No: VA0065552
Sample Period: 1/30/06 to 2/2/06



Report of Analysis: Whole Effluent Toxicity (WET)

Submitted To: Ms. Tara Taylor Public Utilities Department City of Winchester P.O. Box 75 Winchester, VA 22604	Prepared By: Coastal Bioanalysts, Inc. 6400 Enterprise Court Gloucester, VA 23061 (804) 694-8285 www.coastalbio.com Contact: Peter F. De Lisle, Technical Director
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Acute Test Results				
Species-Test Method	48-h LC50	95% C.L.	T.U. _{Ac}	NOAEC
<i>C. dubia</i> EPA 2002.0	>100	N/A	<1.00	100
<i>P. promelas</i> EPA 2000.0	>100	N/A	<1.00	100

Chronic Test Results										
Species-Test Method	Endpoint	NOEC	LOEC	Chr-V	PMSD	T.U. _C	IC25	48-h LC50	LC50 95% C.L.	T.U. _{Ac}
<i>C. dubia</i> EPA 1002.0	Survival	100	>100	>100	N/A	1.00	N/A	>100	N/A	<1.00
	Reproduction	100	>100	>100	25	1.00	>100	N/A	N/A	N/A
<i>P. promelas</i> EPA 1000.0	Survival	100	>100	>100	N/A	1.00	N/A	>100	N/A	<1.00
	Biomass	100	>100	>100	26	1.00	>100	N/A	N/A	N/A

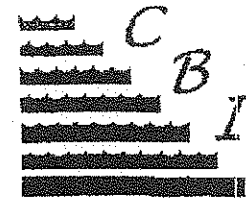
Note: Details regarding test conduct and data analysis provided in attached bench sheets and printouts as applicable.

Acute Test Biological Summary Data		Sample Concentration (%)					
Species-Method	Endpoint	Control	6.3	13	25	50	100
<i>C. dubia</i> EPA 2002.0	Survival (%):	100	100	100	100	100	100
<i>P. promelas</i> EPA 2000.0	Survival (%):	100	100	100	100	100	100

Chronic Test Biological Summary Data		Sample Concentration (%)					
Species-Method	Endpoint	Control	15.5	31	62	81	100
<i>C. dubia</i> EPA 1002.0	Survival (%):	100	100	100	100	100	90
	Repro (# young):	21.5	22.4	20.3	20.2	22.4	18.1
<i>P. promelas</i> EPA 1000.0	Survival (%):	100	98	95	98	95	98
	Biomass (mg):	0.757	0.575	0.633	0.699	0.584	0.598

Test Information	Start Date/Time	Organism	Hatch/Harvest	Acclimation	Acclimation	Test
Species-Method	End Date/Time	Source	Date/Time	Temp.	Water	Aerated?
<i>C. dubia</i> EPA 2002.0	2/1/06 1310 2/3/06 1315	CBI Stock	1/31/06 1625 2/1/06 0930	25° C	Mod. Hard Syn. FW	No
<i>P. promelas</i> EPA 2000.0	2/1/06 1315 2/3/06 1325	CBI Stock	1/29/06 1600 1/30/06 1600		Mod. Hard Syn. FW	No
<i>C. dubia</i> EPA 1002.0	1/31/06 1545 2/6/06 1450	CBI Stock	1/30/06 1620 1/30/06 2200	25° C	Mod. Hard Syn. FW	No
<i>P. promelas</i> EPA 1000.0	1/31/06 1600 2/7/06 1500	CBI Stock	1/30/06 1630 1/31/06 1100		Mod. Hard Syn. FW	No

Client: City of Winchester
 Project ID: WINC0601
 Client Sample ID: Opequon WRF Outfall 001
 Permit No: VA0065552
 Sample Period: 1/30/06 to 2/2/06



Sample/Dilution Water Data	Acute Test		Chronic Test			
	Sample	Dilution Water	Sample		Dilution Water	
Water Quality Parameter (Units)			Mean	Std. Dev.	Mean	Std. Dev.
Arrival Temperature (°C)	2	N/A	2	0.6	N/A	N/A
Use Temperature (°C)	25	25	25	0.5	25	0
Conductivity (µS/cm)	1070	286	1124	207	288	6.9
pH (S.U.)	7.76	7.84	7.81	0.10	7.75	0.07
Dissolved Oxygen (mg/l)	8.2	8.2	8.2	0	8.2	0
Total Hardness (mg/l as CaCO ₃)	290	92	286	20	90	3.9
Alkalinity (mg/l as CaCO ₃)	219	63	220	6.6	63	1.3
Total Residual Chlorine (mg/l)	<Q.L.	N/A	<Q.L.	0	N/A	N/A
Ammonia (mg/l NH ₃ -N)	2.3	N/A	1.1	1.1	N/A	N/A

*Dilution water = Moderately hard synthetic freshwater made with ASTM Type I deionized water

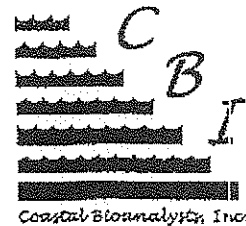
Sample Aging/Use/Pretreatment				
CBI Sample I.D.	Collection Date/Time	Date(s)/Time(s) 1 st Used in Tests	Date(s)/Time(s) Used in Renewals	Sample Adjustments
WINC0601-A	1/30/06 1100	1/31/06 1545, 1600	N/A	Aerated 5 min
WINC0601-B	1/31/06 1100	2/1/06 1310, 1315* 2/1/06 1430, 1440	2/2/06 1410, 1430	Aerated 3.5-5.5 min
WINC0601-C	2/2/06 1100	2/3/06 1440, 1540	2/4/06 1405, 1450 2/5/06 1500, 1600 2/6/06 1400	Aerated 4-5 min

*acute tests

Acute Test Water Quality (Mean/Std. Dev.)												
Test:	C. dubia 2002.0						P. promelas 2000.0					
% Conc:	Cont.	6.3	13	25	50	100	Cont.	6.3	13	25	50	100
Temp. (°C)	25	25	25	25	25	25	25	25	25	25	25	25
D.O. (mg/l)	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.0
pH (S.U.)	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2
	7.65	7.65	7.67	7.70	7.74	7.82	7.71	7.67	7.68	7.74	7.84	7.95
	0.07	0.05	0.04	0.11	0.20	0.35	0.06	0.06	0.02	0.04	0.08	0.19

Chronic Test Water Quality (Mean/Std. Dev.)												
Test:	C. dubia 1002.0						P. promelas 1000.0					
% Conc:	Cont.	15.5	31	62	81	100	Cont.	15.5	31	62	81	100
Temp. (°C)	25	25	25	25	25	25	25	25	25	25	25	25
D.O. (mg/l)	8.1	8.1	8.0	8.0	7.9	7.9	8.1	8.1	8.0	7.9	7.9	7.9
pH (S.U.)	0.2	0.2	0.2	0.3	0.3	0.4	0.1	0.2	0.2	0.3	0.3	0.3
	7.57	7.65	7.67	7.73	7.78	7.95	7.47	7.50	7.56	7.71	7.81	7.91
	0.22	0.24	0.27	0.25	0.22	0.14	0.20	0.17	0.20	0.17	0.11	0.10
Cond. (µS/cm)	293	413	528	775	916	1085	292	411	534	775	903	1086
	5.6	12	18	45	64	73	6.2	16	22	56	75	86

Client: City of Winchester
Project ID: WINC0601
Client Sample ID: Opequon WRF Outfall 001
Permit No: VA0065552
Sample Period: 1/30/06 to 2/2/06



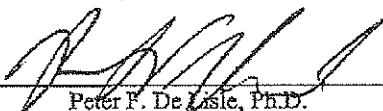
Acute Test QA/QC Reference Toxicant: KCl Units: mg/l					
Species-Method (Ref. Test Date)	Data Source	Animal Source	% Control Survival	48-h LC50	95% C.L./A.L. for LC50
C. dubia 2002.0 (1/25/06-1/27/06)	RTT	CBI	100	531	492-573
	CC	CBI	100	562	509-614
P. promelas 2000.0 (1/10/06-1/13/06)	RTT	CBI	95	887	799-970
	CC	CBI	100	897	801-993

Chronic Test QA/QC Reference Toxicant: KCl Units: mg/l									
Species-Method (Ref. Test Date)	Data Source	Animal Source	Survival (%)		Reproduction (# Young)/Biomass (mg)				
			Cont.	NOEC	Cont.	NOEC	PMSD	IC25	IC25 A.L.
C. dubia 1002.0 (1/4/06-1/10/06)	RTT	CBI	100	500	23.9	250	21	379	N/A
	CC	CBI	98	500	22.2	250	26	323	261-385
P. promelas 1000.0 (1/3/06-1/10/06)	RTT	CBI	95	500	0.63	500	25	641	N/A
	CC	CBI	99	500	0.53	500	15	605	553-657

Note: RTT = Reference Toxicant Test, CC = Control Chart, Cont. = Control group.

The results of analysis contained within this report relate only to the sample as received in the laboratory. This report shall not be reproduced except in full without written approval from the laboratory.

APPROVED:


Peter F. De Lisle, Ph.D.
Technical Director

2/10/06
Date

GLOSSARY OF TERMS AND ABBREVIATIONS

A.L. (Acceptance Limits): The results of a given reference toxicant test are compared to the control chart mean value \pm 2 standard deviations. These limits approximate the 95% probability limits for the "true" reference toxicant value.

Chronic Value (ChrV): The geometric mean of the NOEC and LOEC. Units are same as test concentration units.

C.L. (Confidence Limits): These are the probability limits, based on the data set and statistical model employed, that the "true value" lies within the limits specified. Typically limits are based on 95% or 99% probabilities.

Control chart: A cumulative summary chart of results from QC tests with reference toxicants. The results of a given reference toxicant test are compared to the control chart mean value and 95% Acceptance Limits (A.L.) (mean \pm 2 standard deviations).

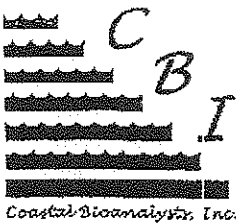
IC25: The concentration of sample or chemical, calculated from the data set using statistical models, causing a 25% reduction in test organism growth, reproduction, etc. The lower the IC25, the more toxic the chemical or sample. Units are same as test concentration units.

LC50: The concentration of sample or chemical, calculated from the data set using statistical models, causing a 50% reduction in test organism survival. The lower the LC50, the more toxic the chemical or sample. Units are same as test concentration units. Note: The LC50 value must always be associated with the duration of exposure. Thus 48-h LC50, 96-h LC50, etc. are calculated.

LOEC: Lowest-observable-effect-concentration. The lowest concentration of sample or chemical in a chronic test dilution series in which the test organisms exhibit a statistically significant reduction in any of the test end points (e.g. growth, survival, reproduction) compared to control organisms. Units are same as test concentration units.

PMSD: Percent Minimum Significant Difference: The minimum difference which can exist between a test treatment and the controls in a particular test and be statistically significant; a measure of test sensitivity. The lower the PMSD the more sensitive the test.

Client: City of Winchester
Project ID: WINC0602
Client Sample ID: Opequon WRF Outfall 001
Permit No: VA0065552
Sample Period: 6/27/06



Report of Analysis: Whole Effluent Toxicity (WET)

Submitted To: Mr. Don Riggleman Public Utilities Department City of Winchester P.O. Box 75 Winchester, VA 22604	Prepared By: Coastal Bioanalysts, Inc. 6400 Enterprise Court Gloucester, VA 23061 (804) 694-8285 www.coastalbio.com Contact: Peter F. De Lisle, Technical Director
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Species-Test Method	48-h LC50	95% C.L.	T.U. _{acc}	NOAEC
<i>C. dubia</i> EPA 2002.0	>100	N/A	<1.00	100
<i>P. promelas</i> EPA 2000.0	>100	N/A	<1.00	100

Note: Details regarding test conduct and data analysis provided in attached bench sheets and printouts as applicable.

Acute Test Biological Summary Data		Sample Concentration (%)					
Species-Method	Endpoint	Control	6.3	13	25	50	100
<i>C. dubia</i> EPA 2002.0	Survival (%):	100	100	100	100	100	100
<i>P. promelas</i> EPA 2000.0	Survival (%):	100	100	100	100	100	100

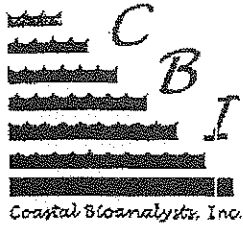
Test Information	Start Date/Time	Organism	Hatch/Harvest	Acclimation	Acclimation	Test
Species-Method	End Date/Time	Source	Date/Time	Temp.	Water	Aerated?
<i>C. dubia</i> EPA 2002.0	6/28/06 1630 6/30/06 1620	CBI Stock	6/27/06 1640 6/28/06 0930	25° C	Mod. Hard Syn. FW	No
<i>P. promelas</i> EPA 2000.0	6/28/06 1620 6/30/06 1615	CBI Stock	6/22/06 1100 6/23/06 1030	25° C	Mod. Hard Syn. FW	No

Sample/Dilution Water Data		Acute Test	
Water Quality Parameter (Units)		Sample	Dilution Water
Arrival Temperature (°C)		1	N/A
Use Temperature (°C)		25	25
Conductivity (µS/cm)		953	296
pH (S.U.)		7.92	7.66
Dissolved Oxygen (mg/l)		8.2	8.2
Total Hardness (mg/l as CaCO ₃)		N.D.	84
Alkalinity (mg/l as CaCO ₃)		N.D.	59
Total Residual Chlorine (mg/l)		<Q.L.	N/A
Ammonia (mg/l NH ₃ -N)		<1.0	N/A

Dilution water = Moderately hard synthetic freshwater made with ASTM Type I deionized water

Sample Aging/Use/Retreatment				
CBI Sample I.D.	Collection Date/Time	Date(s)/Time(s) 1 st Used in Tests	Date(s)/Time(s) Used in Renewals	Sample Adjustments
WINC0602-B	6/27/06 1100	6/28/06 1620, 1630	N/A	Aerated 2 min

Client: City of Winchester
Project ID: WINC0602
Client Sample ID: Opequon WRF Outfall 001
Permit No: VA0065552
Sample Period: 6/27/06



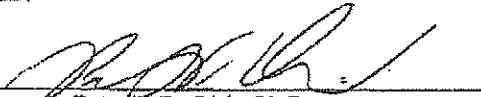
Acute Test Water Quality (Mean/Std. Dev.)													
Test:	<i>C. dubia</i> 2002.0						<i>P. promelas</i> 2000.0						
% Conc:	Cont.	6.3	13	25	50	100	Cont.	6.3	13	25	50	100	
Temp.	25	25	25	25	25	25	25	25	25	25	25	25	
(°C)	0	0	0	0	0	0	0	0	0	0	0	0	
D.O.	8.1	8.1	8.1	8.0	8.0	8.0	8.1	8.0	8.0	7.9	7.9	7.8	
(mg/l)	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.2	0.3	0.3	0.4	0.5	
pH	7.73	7.77	7.82	7.87	7.93	8.16	7.60	7.64	7.70	7.77	7.87	8.01	
(S.U.)	0.09	0.09	0.10	0.12	0.17	0.24	0.09	0.08	0.06	0.05	0.03	0.10	

Acute Test Q.A./Q.C. Reference Toxicant: KCl Units: mg/l Test Organism Source: CBI Stock Cultures					
Species-Method (Ref. Test Date)	Data Source	% Control Survival	48-h LC50	95% C.L./A.L. for LC50	RTT in Control?
<i>C. dubia</i> 2002.0 (6/27/06-6/29/06)	RTT	100	601	559-647	Yes
	CC	100	568	515-622	
<i>P. promelas</i> 2000.0 (6/27/06-6/29/06)	RTT	100	917	735-1050	Yes
	CC	99	891	788-994	

Note: RTT = Reference Toxicant Test, CC = Control Chart, Cont. = Control group.

The results of analysis contained within this report relate only to the sample as received in the laboratory. This report shall not be reproduced except in full without written approval from the laboratory.

APPROVED:


Peter F. De Lisle, Ph.D.
Technical Director

7/17/06
Date

GLOSSARY OF TERMS AND ABBREVIATIONS

A.L. (Acceptance Limits): The results of a given reference toxicant test are compared to the control chart mean value \pm 2 standard deviations. These limits approximate the 95% probability limits for the "true" reference toxicant value.

C.L. (Confidence Limits): These are the probability limits, based on the data set and statistical model employed, that the "true value" lies within the limits specified. Typically limits are based on 95% or 99% probabilities.

Control chart: A cumulative summary chart of results from QC tests with reference toxicants. The results of a given reference toxicant test are compared to the control chart mean value and 95% Acceptance Limits (A.L.) (mean \pm 2 standard deviations).

LC50: The concentration of sample or chemical, calculated from the data set using statistical models, causing a 50% reduction in test organism survival. The lower the LC50, the more toxic the chemical or sample. Units are same as test concentration units. Note: The LC50 value must always be associated with the duration of exposure. Thus 48-h LC50, 96-h LC50, etc. are calculated.

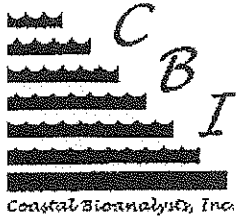
N/A: Not applicable. N/D: Not determined or measured.

NOAEC: No-observable-acute-effect-concentration. The highest concentration of sample or chemical in an acute test dilution series in which the test organisms exhibit no statistically significant reduction in the test end point (e.g. survival) compared to control organisms. Units are same as test concentration units.

Q.L.: Quantitation Limit. Level, concentration, or quantity of a target variable (analyte) that can be reported at a specified degree of confidence.

T.U.: Toxic units. Expresses the relative toxicity of an effluent in such a manner that the larger the toxic unit value the more toxic the effluent. $T.U._{LC} = 100/LC50$. $T.U._{OEC} = 100/NOEC$. A dimensionless unit.

Client: City of Winchester
Project ID: WINC0801
Client Sample ID: Opequon WRF Outfall 001
Permit No: VA0065552
Sample Period: 1/14/08 to 1/17/08



Report of Analysis: Whole Effluent Toxicity (WET)

Submitted To: Ms. Jennifer Morgan Public Utilities Department City of Winchester P.O. Box 75 Winchester, VA 22604	Prepared By: Coastal Bioanalysts, Inc. 6400 Enterprise Court Gloucester, VA 23061 (804) 694-8285 www.coastalbio.com Contact: Peter F. De Lisle, Technical Director
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Chronic Test Results										
Species-Test Method	Endpoint	NOEC	LOEC	ChrV	PMSD	T.U. _c	IC25	48-h LC50	LC50 95% C.I.	T.U. _{Ac}
<i>C. dubia</i> EPA 1002.0	Survival	100	>100	>100	N/A	1.00	N/A	>100	N/A	<1.00
	Reproduction	100	>100	>100	31	1.00	>100	N/A	N/A	N/A
<i>P. promelas</i> EPA 1000.0	Survival	100	>100	>100	N/A	1.00	N/A	>100	N/A	<1.00
	Biomass	100	>100	>100	26	1.00	>100	N/A	N/A	N/A

Note: Details regarding test conduct and data analysis provided in attached bench sheets and printouts as applicable.

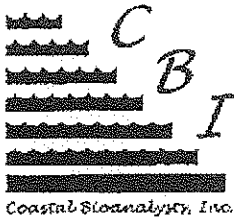
Chronic Test Biological Summary Data		Sample Concentration (%)					
Species-Method	Endpoint	Control	16	32	64	82	100
<i>C. dubia</i> EPA 1002.0	Survival (%):	100	100	100	100	100	90
	Repro (# young):	24.7	25.3	29.0	26.1	29.2	25.0
<i>P. promelas</i> EPA 1000.0	Survival (%):	98	100	93	98	80	88
	Biomass (mg):	0.558	0.526	0.540	0.476	0.449	0.457

Test Information	Start Date/Time	Organism	Hatch/Harvest	Acclimation	Acclimation	Test
Species-Method	End Date/Time	Source	Date/Time	Temp.	Water	Aerated?
<i>C. dubia</i> EPA 1002.0	1/15/08 1505 1/22/08 1420	CBI Stock	1/14/08 1630 1/14/08 2200	25° C	Mod. Hard Syn. FW	No
<i>P. promelas</i> EPA 1000.0	1/15/08 1425 1/22/08 1430	CBI Stock	1/14/08 1500 1/15/08 1000	25° C	Mod. Hard Syn. FW	No

Sample/Dilution Water Data	Chronic Test			
	Sample		Dilution Water	
	Mean	Std. Dev.	Mean	Std. Dev.
Water Quality Parameter (Units)				
Arrival Temperature (°C)	1	0	N/A	N/A
Use Temperature (°C)	25	0.8	25	0
Conductivity (µS/cm)	1209	139	295	2.6
pH (S.U.)	7.92	0.20	7.66	0.05
Dissolved Oxygen (mg/l)	8.2	0.1	8.2	0
Total Hardness (mg/l as CaCO ₃)	320	51	94	5.3
Alkalinity (mg/l as CaCO ₃)	190	27	59	1.6
Total Residual Chlorine (mg/l)	<Q.L.	0	N/A	N/A
Ammonia (mg/l NH ₃ -N)	<1.0	0	N/A	N/A

Dilution water = Moderately hard synthetic freshwater made with ASTM Type I deionized water

Client: City of Winchester
Project ID: WINC0801
Client Sample ID: Opequon WRF Outfall 001
Permit No: VA0065552
Sample Period: 1/14/08 to 1/17/08



Sample Aging/Use/Pretreatment				
CBI Sample I.D.	Collection Date/Time	Date(s)/Time(s) 1 st Used in Tests	Date(s)/Time(s) Used in Renewals	Sample Adjustments
WINC0801-A	1/14/08 0715	1/15/08 1425, 1505	N/A	N/A
WINC0801-B	1/15/08 0715	1/16/08 1400, 1450	1/17/08 1400, 1455	N/A
WINC0801-C	1/17/08 0715	1/18/08 1400, 1505	1/19/08 1515, 1600 1/20/08 1430, 1520 1/21/08 1310, 1345	Aerated 0-4.5 min

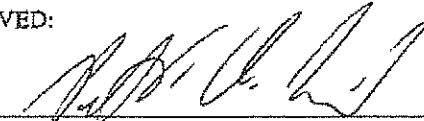
Chronic Test Water Quality (Mean/Std. Dev.)												
Test:	<i>C. dubia</i> 1002.0						<i>P. promelas</i> 1000.0					
% Conc:	Cont.	16	32	64	82	100	Cont.	16	32	64	82	100
Temp.	25	25	25	25	25	25	25	25	25	25	25	25
(°C)	0.5	0.5	0.5	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3
D.O.	8.1	8.1	8.1	8.0	8.0	8.0	8.1	8.1	8.0	7.9	7.8	7.7
(mg/l)	0.1	0.1	0.2	0.2	0.2	0.3	0.1	0.2	0.3	0.4	0.4	0.5
pH	7.57	7.74	7.86	8.03	8.11	8.16	7.54	7.62	7.73	7.84	7.92	7.97
(S.U.)	0.09	0.17	0.16	0.16	0.19	0.21	0.10	0.16	0.19	0.18	0.17	0.16
Cond.	294	443	596	889	1082	1221	303	442	595	855	1029	1221
(µS/cm)	6.0	13	27	48	97	69	10	16	33	51	60	62

Chronic Test QA/QC Reference Toxicant: KCl Units: mg/l Test Organism Source: CBI Stock Cultures									
Species-Method (Ref. Test Date)	Data Source	% Survival		Reproduction (# Young) or Biomass (mg)					RTT in Control?
		Cont.	NOEC	Cont.	NOEC	PMSD	IC25	IC25 A.L.	
<i>C. dubia</i> 1002.0 (1/4/08-1/11/08)	RTT	100	250	24.4	250	27	278	N/A	Yes
	CC	96	500	21.9	250	24	342	253-431	
<i>P. promelas</i> 1000.0 (1/2/08-1/9/08)	RTT	100	500	0.71	500	14	593	N/A	Yes
	CC	97	500	0.58	500	17	612	565-659	

Note: RTT = Reference Toxicant Test, CC = Control Chart, Cont. = Control group.

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APPROVED:


Peter F. De Lisle, Ph.D.
Technical Director

1/25/08
Date

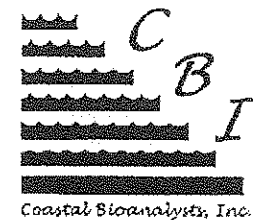
GLOSSARY OF TERMS AND ABBREVIATIONS

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C.L. (Confidence Limits): These are the probability limits, based on the data set and statistical model employed, that the "true value" lies within the limits specified. Typically limits are based on 95% or 99% probabilities.

Client: City of Winchester
Project ID: WINC0901
Client Sample ID: Opequon WRF Outfall 001
Permit No: VA0065552
Sample Period: 1/5/09 to 1/8/09



Report of Analysis: Whole Effluent Toxicity (WET)

Submitted To: Ms. Jennifer Morgan Public Utilities Department City of Winchester P.O. Box 75 Winchester, VA 22604	Prepared By: Coastal Bioanalysts, Inc. 6400 Enterprise Court Gloucester, VA 23061 (804) 694-8285 www.coastalbio.com Contact: Peter F. De Lisle, Technical Director
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Chronic Test Results*										
Species-Test Method	Endpoint	NOEC	LOEC	ChrV	PMSD	T.U. _c	IC25	48-h LC50	LC50 95% C.L.	T.U. _{ac}
<i>P. promelas</i>	Survival	100	>100	>100	N/A	1.00	N/A	>100	N/A	<1.00
EPA 1000.0	Biomass	100	>100	>100	20	1.00	>100	N/A	N/A	N/A

*Note: Details regarding test conduct and data analysis provided in attached bench sheets and printouts as applicable.

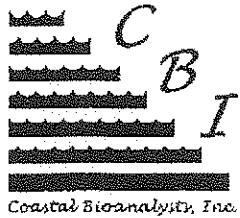
Chronic Test Biological Summary Data		Sample Concentration (%)					
Species-Method	Endpoint	Control	16	32	64	82	100
<i>P. promelas</i> EPA 1000.0	Survival (%):	88	95	100	98	90	98
	Biomass (mg):	0.461	0.540	0.531	0.528	0.424	0.546

Test Information	Start Date/Time	Organism	Hatch/Harvest	Acclimation	Acclimation	Test
Species-Method	End Date/Time	Source	Date/Time	Temp.	Water	Aerated?
<i>P. promelas</i>	1/6/09 1205	CBI	1/5/09 1530		Mod. Hard	
EPA 1000.0	1/13/09 1215	Stock	1/6/09 1030	25° C	Syn. FW	No

Sample/Dilution Water Data	Chronic Test			
	Sample		Dilution Water*	
	Mean	Std. Dev.	Mean	Std. Dev.
Water Quality Parameter (Units)				
Arrival Temperature (°C)	1	0.6	N/A	N/A
Use Temperature (°C)	25	0	25	0
Conductivity (µS/cm)	1020	48	294	3.1
pH (S.U.)	8.01	0.19	7.64	0.05
Dissolved Oxygen (mg/l)	8.2	0	8.2	0
Total Hardness (mg/l as CaCO ₃)	291	37	98	2.1
Alkalinity (mg/l as CaCO ₃)	196	30	59	0.5
Total Residual Chlorine (mg/l)	<Q.L.	0	N/A	N/A
Ammonia (mg/l NH ₃ -N)	<1.0	0	N/A	N/A

*Dilution water = Moderately hard synthetic freshwater made with ASTM Type I deionized water

Client: City of Winchester
Project ID: WINC0901
Client Sample ID: Opequon WRF Outfall 001
Permit No: VA0065552
Sample Period: 1/5/09 to 1/8/09



Sample Aging/Use/Pretreatment				
CBI Sample I.D.	Collection Date/Time	Date(s)/Time(s) 1 st Used in Tests	Date(s)/Time(s) Used in Renewals	Sample Adjustments
WINC0901-A	1/5/09 0730	1/6/09 1205	N/A	Aerated 3.5 min
WINC0901-B	1/6/09 0730	1/7/09 1520	1/8/09 1105	Aerated 3-3.5 min
WINC0901-C	1/8/09 0730	1/9/09 1300	1/10/09 1130 1/11/09 1210 1/12/09 1150	Aerated 2.5-3 min


Chronic Test Water Quality (Mean/Std. Dev.)						
Test:	<i>P. promelas</i> 1000.0					
% Conc:	Cont.	16	32	64	82	100
Temp. (°C)	25 0.3	25 0.3	25 0.3	25 0.3	25 0.3	25 0.3
D.O. (mg/l)	7.5 0.7	7.5 0.7	7.5 0.8	7.5 0.7	7.5 0.7	7.4 0.8
pH (S.U.)	7.40 0.25	7.57 0.26	7.72 0.25	7.94 0.16	8.02 0.13	8.07 0.11
Cond. (uS/cm)	298 4.4	406 12	519 16	740 26	867 34	1009 35

Chronic Test QA/QC		Reference Toxicant: KCl		Units: mg/l		Test Organism Source: CBI Stock Cultures			
Species-Method (Ref. Test Date)	Data Source	% Survival		Biomass (mg)					RTT in Control?
		Cont.	NOEC	Cont.	NOEC	PMSD	IC25	IC25 A.L.	
<i>P. promelas</i> 1000.0 (1/6/09-1/13/09)	RTT	95	500	0.62	500	17	625	N/A	Yes
	CC	99	500	0.65	500	16	615	579-651	

Note: RTT = Reference Toxicant Test, CC = Control Chart, Cont. = Control group.

The results of analysis contained within this report relate only to the sample as received in the laboratory. This report shall not be reproduced except in full without written approval from the laboratory.

APPROVED:


Peter F. De Lisle, Ph.D.
Technical Director

1/13/09
Date

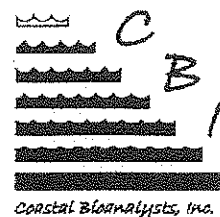
GLOSSARY OF TERMS AND ABBREVIATIONS

A.L. (Acceptance Limits): The results of a given reference toxicant test are compared to the control chart mean value \pm 2 standard deviations. These limits approximate the 95% probability limits for the "true" reference toxicant value.

Chronic Value (ChrV): The geometric mean of the NOEC and LOEC. Units are same as test concentration units.

C.L. (Confidence Limits): These are the probability limits, based on the data set and statistical model employed, that the "true value" lies within the limits specified. Typically limits are based on 95% or 99% probabilities.

Client: City of Winchester
Project ID: WINC1001
Client Sample ID: Opequon WRF Outfall 001
Permit No: VA0065552
Sample Period: 1/4/10 to 1/7/10



Report of Analysis: Whole Effluent Toxicity (WET)

Submitted To: Ms. Jennifer Morgan Public Utilities Department City of Winchester P.O. Box 75 Winchester, VA 22604	Prepared By: Coastal Bioanalysts, Inc. 6400 Enterprise Court Gloucester, VA 23061 (804) 694-8285 www.coastalbio.com Contact: Peter F. De Lisle, Technical Director
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Chronic Test Results*										
Species-Test Method	Endpoint	NOEC	LOEC	ChrV	PMSD	T.U.-C	IC25	48-h LC50	LC50 95% C.L.	T.U.-Ac
C. dubia EPA 1002.0	Survival	100	>100	>100	N/A	1.00	N/A	>100	N/A	<1.00
	Reproduction	100	>100	>100	27	1.00	>100	N/A	N/A	N/A
P. promelas EPA 1000.0	Survival	100	>100	>100	N/A	1.00	N/A	>100	N/A	<1.00
	Biomass	100	>100	>100	13	1.00	>100	N/A	N/A	N/A

*Note: Details regarding test conduct and data analysis provided in attached bench sheets and printouts as applicable.

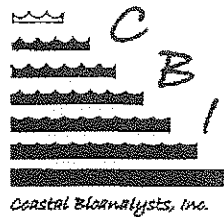
Chronic Test Biological Summary Data		Sample Concentration (%)					
Species-Method	Endpoint	Control	16.0	32.0	64.0	82.0	100
C. dubia EPA 1002.0	Survival (%):	90	90	100	100	90	100
	Repro (# young):	28.1	29.5	31.9	28.0	27.4	29.2
P. promelas EPA 1000.0	Survival (%):	98	98	98	100	100	100
	Biomass (mg):	0.805	0.719	0.726	0.752	0.779	0.765

Test Information	Start Date/Time	Organism	Hatch/Harvest	Acclimation	Acclimation	Test
Species-Method	End Date/Time	Source	Date/Time	Temp.	Water	Aerated?
C. dubia	1/5/10 1420	CBI	1/4/10 1635	25° C	Mod. Hard	No
EPA 1002.0	1/11/10 1555	Stock	1/4/10 2200		Syn. FW	
P. promelas	1/5/10 1335	CBI	1/4/10 1600	25° C	Mod. Hard	No
EPA 1000.0	1/12/10 1345	Stock	1/5/10 0830		Syn. FW	

Sample/Dilution Water Data	Chronic Test			
	Sample		Dilution Water*	
Water Quality Parameter (Units)	Mean	Std. Dev.	Mean	Std. Dev.
Arrival Temperature (°C)	1	0	N/A	N/A
Use Temperature (°C)	25	0	25	0.5
Conductivity (uS/cm)	1145	161	301	3.3
pH (S.U.)	8.17	0.26	7.99	0.06
Dissolved Oxygen (mg/l)	8.2	0	8.2	0
Total Hardness (mg/l as CaCO ₃)	276	86	100	0
Alkalinity (mg/l as CaCO ₃)	202	13	57	0
Total Residual Chlorine (mg/l)	<Q.L.	0	N/A	N/A
Ammonia (mg/l NH ₃ -N)	<1.0	0	N/A	N/A

*Dilution water = Moderately hard synthetic freshwater

Client: City of Winchester
Project ID: WINC1001
Client Sample ID: Opequon WRF Outfall 001
Permit No: VA0065552
Sample Period: 1/4/10 to 1/7/10



Sample Aging/Use/Pretreatment				
CBI Sample I.D.	Collection Date/Time	Date(s)/Time(s) 1 st Used in Tests	Date(s)/Time(s) Used in Renewals	Sample Adjustments
WINC1001-A	1/4/10 0730	1/5/10 1335, 1420	N/A	Aerated 1 min
WINC1001-B	1/5/10 0730	1/6/10 1445, 1545	1/7/10 1500, 1500	Aerated 0.5 min
WINC1001-C	1/7/10 0730	1/8/10 1310, 1330	1/9/10 1255, 1500 1/10/10 1140, 1345 1/11/10 1300	Aerated 0.5-1 min

Chronic Test Water Quality (Mean/Std. Dev.)												
Test:	<i>C. dubia</i> 1002.0						<i>P. promelas</i> 1000.0					
% Conc:	Cont.	16.0	32.0	64.0	82.0	100	Cont.	16.0	32.0	64.0	82.0	100
Temp. (°C)	25	25	25	25	25	25	25	25	25	25	25	25
	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
D.O. (mg/l)	7.9	7.9	7.9	7.9	7.9	7.9	7.4	7.4	7.4	7.4	7.4	7.4
	0.4	0.4	0.4	0.4	0.4	0.4	0.8	0.4	0.4	0.4	0.4	0.4
pH (S.U.)	7.90	8.07	8.17	8.28	8.33	8.38	7.75	7.82	7.91	8.02	8.07	8.11
	0.07	0.11	0.15	0.19	0.21	0.23	0.26	0.31	0.28	0.23	0.22	0.23
Cond. (µS/cm)	301	445	584	862	1028	1190	299	449	598	873	1044	1211
	6.1	17	31	66	92	119	4.5	17	36	68	95	119

Chronic Test QA/QC Reference Toxicant: KCl Units: mg/l Test Organism Source: CBI Stock Cultures									
Species-Method (Ref. Test Date)	Data Source	% Survival		Reproduction (# Young) or Biomass (mg)					RTT in Control?
		Cont.	NOEC	Cont.	NOEC	PMSD	IC25	IC25 A.L.	
<i>C. dubia</i> 1002.0 (1/3/10-1/10/10)	RTT	100	500	26.9	250	21	380	N/A	Yes
	CC	97	500	22.9	250	29	303	215-390	
<i>P. promelas</i> 1000.0 (1/1/10-1/8/10)	RTT	98	500	0.72	500	20	591	N/A	Yes
	CC	98	500	0.66	500	15	606	565-646	

Note: RTT = Reference Toxicant Test, CC = Control Chart, Cont. = Control group.

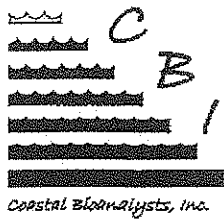
The results of analysis contained within this report relate only to the sample as received in the laboratory. This report shall not be reproduced except in full without written approval from the laboratory.

APPROVED:


Peter F. De Lisle, Ph.D.
Technical Director

1/18/10
Date

Client: City of Winchester
Project ID: WINC1002
Client Sample ID: Opequon WRF Outfall 001
Permit No: VA0065552
Sample Period: 4/5/10 to 4/8/10



Report of Analysis: Whole Effluent Toxicity (WET)

Submitted To: Ms. Jennifer Morgan Public Utilities Department City of Winchester P.O. Box 75 Winchester, VA 22604	Prepared By: Coastal Bioanalysts, Inc. 6400 Enterprise Court Gloucester, VA 23061 (804) 694-8285 www.coastalbio.com Contact: Peter F. De Lisle, Technical Director
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Chronic Test Results*										
Species-Test Method	Endpoint	NOEC	LOEC	ChrV	PMSD	T.U. _c	IC25	48-h LC50	LC50 95% C.L.	T.U. _{As}
<i>C. dubia</i> EPA 1002.0	Survival	100	>100	>100	N/A	1.00	N/A	>100	N/A	<1.00
	Reproduction	100	>100	>100	26	1.00	>100	N/A	N/A	N/A
<i>P. promelas</i> EPA 1000.0	Survival	100	>100	>100	N/A	1.00	N/A	>100	N/A	<1.00
	Biomass	100	>100	>100	14	1.00	>100	N/A	N/A	N/A

*Note: Details regarding test conduct and data analysis provided in attached bench sheets and printouts as applicable.

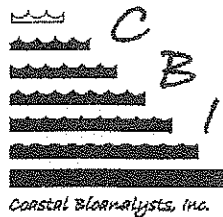
Chronic Test Biological Summary Data		Sample Concentration (%)					
Species-Method	Endpoint	Control	16.0	32.0	64.0	82.0	100
<i>C. dubia</i> EPA 1002.0	Survival (%):	100	100	100	100	100	90
	Repro (# young):	22.9	23.8	25.2	24.5	23.9	22.4
<i>P. promelas</i> EPA 1000.0	Survival (%):	98	98	95	98	95	93
	Biomass (mg):	0.703	0.685	0.639	0.638	0.627	0.641

Test Information	Start Date/Time	Organism	Hatch/Harvest	Acclimation	Acclimation	Test
Species-Method	End Date/Time	Source	Date/Time	Temp.	Water	Aerated?
<i>C. dubia</i> EPA 1002.0	4/6/10 1200 4/11/10 1535	CBI Stock	4/5/10 1215 4/5/10 1400	25° C	Mod. Hard Syn. FW	No
<i>P. promelas</i> EPA 1000.0	4/6/10 1240 4/13/10 1250	CBI Stock	4/5/10 1530 4/6/10 0830	25° C	Mod. Hard Syn. FW	No

Sample/Dilution Water Data	Chronic Test			
	Sample		Dilution Water*	
Water Quality Parameter (Units)	Mean	Std. Dev.	Mean	Std. Dev.
Arrival Temperature (°C)	1	0	N/A	N/A
Use Temperature (°C)	25	0.5	25	0
Conductivity (µS/cm)	1076	73	299	5.7
pH (S.U.)	8.11	0.06	7.89	0.05
Dissolved Oxygen (mg/l)	8.2	0.1	8.2	0
Total Hardness (mg/l as CaCO ₃)	325	6.1	93	3.0
Alkalinity (mg/l as CaCO ₃)	221	5.5	57	0
Total Residual Chlorine (mg/l)	<Q.L.	0	N/A	N/A
Ammonia (mg/l NH ₃ -N)	<1.0	0	N/A	N/A

*Dilution water = Moderately hard synthetic freshwater

Client: City of Winchester
Project ID: WINC1002
Client Sample ID: Opequon WRF Outfall 001
Permit No: VA0065552
Sample Period: 4/5/10 to 4/8/10



Sample Aging/Use/Pretreatment				
CBI Sample I.D.	Collection Date/Time	Date(s)/Time(s) 1 st Used in Tests	Date(s)/Time(s) Used in Renewals	Sample Adjustments
WINC1002-A	4/5/10 0730	4/6/10 1200, 1240	N/A	Aerated 1.5 min
WINC1002-B	4/6/10 0730	4/7/10 1215, 1305	4/8/10 1345, 1425	Aerated 1.5-2.5 min
WINC1002-C	4/8/10 0730	4/9/10 1325, 1405	4/10/10 1235, 1255 4/11/10 1435 4/12/10 1310	Aerated 2-2.5 min


Chronic Test Water Quality (Mean/Std. Dev.)												
Test:	<i>C. dubia</i> 1002.0						<i>P. promelas</i> 1000.0					
% Conc:	Cont.	16.0	32.0	64.0	82.0	100	Cont.	16.0	32.0	64.0	82.0	100
Temp. (°C)	25	25	25	25	25	25	25	25	25	25	25	25
D.O. (mg/l)	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4
pH (S.U.)	7.9	7.9	7.9	7.9	7.9	7.9	7.7	7.7	7.7	7.7	7.6	7.6
Cond. (µS/cm)	0.3	0.3	0.3	0.3	0.3	0.3	0.6	0.6	0.6	0.6	0.6	0.6
	7.86	8.02	8.11	8.21	8.27	8.28	7.61	7.78	7.94	8.06	8.10	8.14
	0.07	0.07	0.05	0.07	0.11	0.12	0.24	0.24	0.19	0.11	0.07	0.06
	296	453	563	805	965	1106	300	433	579	825	977	1132
	4.8	48	12	23	52	58	1.9	9.1	24	33	37	49

Chronic Test QA/QC Reference Toxicant: KCl Units: mg/l Test Organism Source: CBI Stock Cultures									
Species-Method (Ref. Test Date)	Data Source	% Survival		Reproduction (# Young) or Biomass (mg)					RTT in Control?
		Cont.	NOEC	Cont.	NOEC	PMSD	IC25	IC25 A.L.	
<i>C. dubia</i> 1002.0 (4/1/10-4/7/10)	RTT	80	500	17.4	250	20	388	N/A	Yes
	CC	97	500	22.8	250	29	303	214-392	
<i>P. promelas</i> 1000.0 (4/1/10-4/8/10)	RTT	95	500	0.80	500	14	634	N/A	Yes
	CC	98	500	0.67	500	15	606	565-647	

Note: RTT = Reference Toxicant Test, CC = Control Chart, Cont. = Control group.

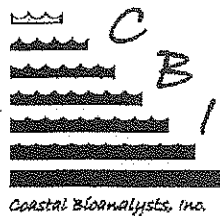
The results of analysis contained within this report relate only to the sample as received in the laboratory. This report shall not be reproduced except in full without written approval from the laboratory.

APPROVED:


Peter F. De Lisle, Ph.D.
Technical Director

4/19/10
Date

Client: City of Winchester
Project ID: WINC1003
Client Sample ID: Opequon WRF Outfall 001
Permit No: VA0065552
Sample Period: 7/6/10 to 7/10/10



Report of Analysis: Whole Effluent Toxicity (WET)

Submitted To: Ms. Jennifer Morgan Public Utilities Department City of Winchester P.O. Box 75 Winchester, VA 22604	Prepared By: Coastal Bioanalysts, Inc. 6400 Enterprise Court Gloucester, VA 23061 (804) 694-8285 www.coastalbio.com Contact: Peter F. De Lisle, Technical Director
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Chronic Test Results*										
Species-Test Method	Endpoint	NOEC	LOEC	ChrV	PMSD	T.U. _c	IC25	48-h LC50	LC50 95% C.L.	T.U. _{ac}
C. dubia	Survival	100	>100	>100	N/A	1.00	N/A	>100	N/A	<1.00
EPA 1002.0	Reproduction	100	>100	>100	42	1.00	>100	N/A	N/A	N/A
P. promelas	Survival	100	>100	>100	N/A	1.00	N/A	>100	N/A	<1.00
EPA 1000.0	Biomass	100	>100	>100	13	1.00	>100	N/A	N/A	N/A

*Note: Details regarding test conduct and data analysis provided in attached bench sheets and printouts as applicable.

Chronic Test Biological Summary Data		Sample Concentration (%)					
Species-Method	Endpoint	Control	16.0	32.0	64.0	82.0	100
C. dubia EPA 1002.0	Survival (%):	100	90	90	100	80	100
	Repro (# young):	18.7	18.3	17.6	26.1	15.5	16.5
P. promelas EPA 1000.0	Survival (%):	100	100	100	98	100	100
	Biomass (mg):	0.650	0.711	0.681	0.690	0.689	0.633

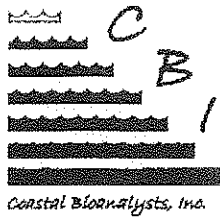
Test Information	Start Date/Time	Organism	Hatch/Harvest	Acclimation	Acclimation	Test
Species-Method	End Date/Time	Source	Date/Time	Temp.	Water	Aerated?
C. dubia	7/7/10 1345	CBI	7/6/10 2200		Mod. Hard	
EPA 1002.0	7/13/10 1625	Stock	7/7/10 0600	25° C	Syn. FW	No
P. promelas	7/7/10 1215	CBI	7/6/10 1600		Mod. Hard	
EPA 1000.0	7/14/10 1245	Stock	7/7/10 0900	25° C	Syn. FW	No

Sample/Dilution Water Data	Chronic Test			
	Sample		Dilution Water*	
Water Quality Parameter (Units)	Mean	Std. Dev.	Mean	Std. Dev.
Arrival Temperature (°C)	1	0.6	N/A	N/A
Use Temperature (°C)	26	0.5	25	0
Conductivity (uS/cm)	1354	53	300	3.2
pH (S.U.)	8.17	0.07	7.90	0.07
Dissolved Oxygen (mg/l)	8.2	0.1	8.2	0
Total Hardness (mg/l as CaCO ₃)	390	47	87	5.4
Alkalinity (mg/l as CaCO ₃)	242	4.6	60	0.4
Total Residual Chlorine (mg/l)	<Q.L.	0	N/A	N/A
Ammonia (mg/l NH ₃ -N)	<1.0	0	N/A	N/A

*Dilution water = Moderately hard synthetic freshwater



Client: City of Winchester
Project ID: WINC1003
Client Sample ID: Opequon WRF Outfall 001
Permit No: VA0065552
Sample Period: 7/6/10 to 7/10/10



Sample Aging/Use/Pretreatment				
CBI Sample I.D.	Collection Date/Time	Date(s)/Time(s) 1 st Used in Tests	Date(s)/Time(s) Used in Renewals	Sample Adjustments
WINC1003-A	7/6/10 0730	7/7/10 1215, 1345	N/A	Aerated 1 min
WINC1003-B	7/7/10 0730	7/8/10 1415, 1520	7/9/10 1440, 1545	Aerated 1 min
WINC1003-C	7/10/10 0730	7/10/10 1415, 1445	7/11/10 1400, 1455 7/12/10 1300, 1510 7/13/10 1310	Aerated 2-3 min


Chronic Test Water Quality (Mean/Std. Dev.)												
Test:	<i>C. dubia</i> 1002.0						<i>P. promelas</i> 1000.0					
% Conc:	Cont.	16.0	32.0	64.0	82.0	100	Cont.	16.0	32.0	64.0	82.0	100
Temp.	26	26	26	26	26	26	25	25	25	25	25	25
(°C)	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4
D.O.	7.8	7.8	7.8	7.9	7.9	7.9	7.6	7.5	7.5	7.6	7.6	7.5
(mg/l)	0.4	0.4	0.4	0.3	0.3	0.4	0.7	0.8	0.8	0.6	0.7	0.7
pH	7.85	8.02	8.14	8.27	8.30	8.32	7.70	7.80	7.92	8.07	8.16	8.20
(S.U.)	0.10	0.10	0.08	0.10	0.12	0.13	0.22	0.27	0.23	0.19	0.10	0.08
Cond.	303	452	626	937	1127	1307	302	464	628	940	1116	1326
(µS/cm)	2.2	9.2	8.2	22	19	6.6	1.9	7.7	14	27	27	11

Chronic Test QA/QC Reference Toxicant: KCl Units: mg/l Test Organism Source: CBI Stock Cultures									
Species-Method (Ref. Test Date)	Data Source	% Survival		Reproduction (# Young) or Biomass (mg)					RTT in Control?
		Cont.	NOEC	Cont.	NOEC	FMSD	IC25	IC25 A.L.	
<i>C. dubia</i> 1002.0 (7/1/10-7/7/10)	RTT	100	500	28.8	125	22	295	N/A	Yes
	CC	97	500	23.1	250	27	306	214-399	
<i>P. promelas</i> 1000.0 (7/1/10-7/8/10)	RTT	98	500	0.65	500	14	614	N/A	Yes
	CC	98	500	0.68	500	15	606	563-648	

Note: RTT = Reference Toxicant Test, CC = Control Chart, Cont. = Control group.

The results of analysis contained within this report relate only to the sample as received in the laboratory. This report shall not be reproduced except in full without written approval from the laboratory. Unless noted below, these test results meet all requirements of NELAP.

APPROVED:


Peter F. De Lisle, Ph.D.
Technical Director

7/16/10
Date

Deviations from, additions to, or exclusions from the test method, non-standard conditions or data qualifiers and, as appropriate, a statement of compliance/non-compliance: NONE

FACILITY NAME AND PERMIT NUMBER: Opequon Water Reclamation Facility VA0065552	<small>Form Approved 1/14/99 OMB Number 2040-0086</small>				
SUPPLEMENTAL APPLICATION INFORMATION					
PART F. INDUSTRIAL USER DISCHARGES AND RCRA/CERCLA WASTES <small>All treatment works receiving discharges from significant industrial users or which receive RCRA, CERCLA, or other remedial wastes must complete Part F.</small>					
GENERAL INFORMATION:					
<p>F.1. Pretreatment Program. Does the treatment works have, or is it subject to, an approved pretreatment program? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>F.2. Number of Significant Industrial Users (SIUs) and Categorical Industrial Users (CIUs). Provide the number of each of the following types of industrial users that discharge to the treatment works.</p> <table style="width: 100%;"><tr><td style="width: 80%;">a. Number of non-categorical SIUs.</td><td style="width: 20%; text-align: center;">6</td></tr><tr><td>b. Number of CIUs.</td><td style="text-align: center;">0</td></tr></table>		a. Number of non-categorical SIUs.	6	b. Number of CIUs.	0
a. Number of non-categorical SIUs.	6				
b. Number of CIUs.	0				
SIGNIFICANT INDUSTRIAL USER INFORMATION:					
<small>Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.</small>					
<p>F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.</p> <p>Name: <u>Significant User Information provided on separate attachment for each user</u></p> <p>Mailing Address: _____</p>					
<p>F.4. Industrial Processes. Describe all of the industrial processes that affect or contribute to the SIU's discharge. _____</p>					
<p>F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.</p> <p>Principal product(s): _____</p> <p>Raw material(s): _____</p>					
<p>F.6. Flow Rate.</p> <p>a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent. _____ gpd (_____ continuous or _____ intermittent)</p> <p>b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent. _____ gpd (_____ continuous or _____ intermittent)</p>					
<p>F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:</p> <p>a. Local limits <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>b. Categorical pretreatment standards <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>If subject to categorical pretreatment standards, which category and subcategory? _____</p>					

FACILITY NAME AND PERMIT NUMBER: Opequon Water Reclamation Facility VA0065552	<small>Form Approved 1/14/99 OMB Number 2040-0086</small>												
F.8. Problems at the Treatment Works Attributed to Waste Discharged by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years? ____ Yes <input checked="" type="checkbox"/> No If yes, describe each episode. _____ _____													
RCRA HAZARDOUS WASTE RECEIVED BY TRUCK, RAIL, OR DEDICATED PIPELINE:													
F.9. RCRA Waste. Does the treatment works receive or has it in the past three years received RCRA hazardous waste by truck, rail, or dedicated pipe? ____ Yes <input checked="" type="checkbox"/> No (go to F.12.)													
F.10. Waste Transport. Method by which RCRA waste is received (check all that apply): ____ Truck ____ Rail ____ Dedicated Pipe													
F.11. Waste Description. Give EPA hazardous waste number and amount (volume or mass, specify units). <table style="width: 100%; border-collapse: collapse;"><thead><tr><th style="text-align: left; border-bottom: 1px solid black;">EPA Hazardous Waste Number</th><th style="text-align: left; border-bottom: 1px solid black;">Amount</th><th style="text-align: left; border-bottom: 1px solid black;">Units</th></tr></thead><tbody><tr><td style="border-bottom: 1px solid black;"> </td><td style="border-bottom: 1px solid black;"> </td><td style="border-bottom: 1px solid black;"> </td></tr><tr><td style="border-bottom: 1px solid black;"> </td><td style="border-bottom: 1px solid black;"> </td><td style="border-bottom: 1px solid black;"> </td></tr><tr><td style="border-bottom: 1px solid black;"> </td><td style="border-bottom: 1px solid black;"> </td><td style="border-bottom: 1px solid black;"> </td></tr></tbody></table>		EPA Hazardous Waste Number	Amount	Units									
EPA Hazardous Waste Number	Amount	Units											
CERCLA (SUPERFUND) WASTEWATER, RCRA REMEDIATION/CORRECTIVE ACTION WASTEWATER, AND OTHER REMEDIAL ACTIVITY WASTEWATER:													
F.12. Remediation Waste. Does the treatment works currently (or has it been notified that it will) receive waste from remedial activities? ____ Yes (complete F.13 through F.15.) <input checked="" type="checkbox"/> No Provide a list of sites and the requested information (F.13 - F.15.) for each current and future site.													
F.13. Waste Origin. Describe the site and type of facility at which the CERCLA/RCRA/or other remedial waste originates (or is expected to originate in the next five years). _____ _____ _____													
F.14. Pollutants. List the hazardous constituents that are received (or are expected to be received). Include data on volume and concentration, if known. (Attach additional sheets if necessary). _____ _____													
F.15. Waste Treatment. a. Is this waste treated (or will it be treated) prior to entering the treatment works? ____ Yes ____ No If yes, describe the treatment (provide information about the removal efficiency): _____ _____													
b. Is the discharge (or will the discharge be) continuous or intermittent? ____ Continuous ____ Intermittent If intermittent, describe discharge schedule. _____													
END OF PART F. REFER TO THE APPLICATION OVERVIEW TO DETERMINE WHICH OTHER PARTS OF FORM 2A YOU MUST COMPLETE													

SIGNIFICANT INDUSTRIAL USER INFORMATION:	
Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.	
F.3.	Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary. Name: <u>Federal Mogul Friction Products</u> Mailing Address: <u>P.O. Box 3250 Winchester, VA 22604</u>
F.4.	Industrial Processes. Describe all the industrial processes that affect or contribute to the SIU's discharge. <u>See Attached Sheet</u>
F.5.	Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge. Principal product(s): <u>Brake Linings</u> Raw material(s): <u>Phenolic resins, metallic powders, fiberglass, barium, hydraulic fluid, boiler treatment chemicals</u>
F.6.	Flow Rate. a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharge into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent. <u>25,000</u> gpd (<u> </u> continuous or <u> X </u> intermittent) b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent. c. <u>7,000 gpd sanitary wastewater intermittently, ~2,000 gpd non-contact cooling water</u> gpd (<u> </u> continuous or <u> X </u> intermittent)
F.7.	Pretreatment Standards. Indicate whether the SIU is subject to the following: a. Local limits <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No b. Categorical pretreatment standards <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If subject to categorical pretreatment standards, which category and subcategory? _____
F.8.	Problems at the Treatment Works Attributed to Waste Discharge by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, describe each episode. _____ _____

Federal Mogul

Significant User Data
Opequon Water Reclamation Facility
VPDES Permit No. VA0065552

F4. Industrial Processes

Raw materials consist of FILLERS (barium sulfate, rubber), FRICTION PARTICLES (fiberglass-80%, steelwool, brass-20%) and BINDERS (Phenolic resins). Raw materials are mixed (4 wet mixers, 5 dry mixers). Pre-formed materials are subjected to pressure, and then materials are subjected to heat and pressure (2500-4500 psi, 185-245 F).

Product is finished and ground to specifications--dust/scrap is collected through a vacuum system. The dust collected by the vacuum system goes to the pelletizing area. The dust is pelletized with concrete and the pellets are landfilled on site. 14 tons/day is collected for landfilling. The waste is stored in totes in a shed until placed in the landfill on one day per week. The landfill remains covered when waste is not being placed into it. The leachate from the landfill is routed to a wet well. The contents of the wet well are pumped to the sanitary sewer main line downstream of the sanitary outfall from the facility. There are two pumps in place at the landfill leachate pump house, the pumps are alternated.

The brake linings are cleaned in the aqueous degreaser. The aqueous degreaser is not discharged to the sanitary sewer. The water goes through a recycling system; make up water is added as needed. According to the Permittee, there are no metal finishing processes performed on site that would render the aqueous degreaser an ancillary categorical discharge under the metal finishing category.

Adhesive is sprayed on break linings automatically in a hood. There are dry filters to collect overspray. If painting is needed, the same machine is used. The finished product is inspected, packed, printed.

There is a printing shop in a separate building. Impressions Plus is using this print shop at this time. Per the Permittee, there continues to be no printing discharge from this building. Bathrooms in the printing building are connected to the sanitary sewer.

Purge water from groundwater testing is dumped to the leachate wet well and discharged with the leachate. This occurs four times per year, about 300 gallons is generated each time. Olver Inc. performs this testing.

There is a quality control laboratory on site. Sulfuric and nitric acids are used for cleaning. The sulfuric is neutralized using NaOH, the nitric is not dumped.

On occasion, machines may be cleaned--resultant sludge is scooped out in drums and disposed of off site. Only two presses are water cooled at this time. Three compressors use cooling water. Water from the deep well is used for the compressors and heat exchangers. Deep well water is discharged to Abram's Creek and is regulated by a VPDES permit (#0076384).

Water from the hydraulic system is circulated through the presses. It is about 3% hydrolubric oil and 97 % water. This water, cooling water overflows, and leaks from presses go back to the hydraulic system. The water is collected in a tank (est. 2,000 gal.). When the tank is full, the water is discharged to the sanitary sewer.

Boiler blowdown is discharged to the sanitary sewer. Water is softened for the boilers, backwash is discharged to the sanitary sewer.

Acetone is recycled on site, generating non-contact cooling water. Waste acetone that is not recycled, liquid phenolic resin, and all other spent solvents are shipped off site for disposal.

SIGNIFICANT INDUSTRIAL USER INFORMATION:	
Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.	
F.3.	Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary. Name: <u>Sunshine's Pride Dairy, Inc.</u> Mailing Address: <u>801 North Kent Street, Winchester, VA 22601</u>
F.4.	Industrial Processes. Describe all the industrial processes that affect or contribute to the SIU's discharge. <u>See Attached Sheet</u>
F.5.	Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge. Principal product(s): <u>Cheese and Dairy products</u> Raw material(s): <u>Whole milk, cream, cream cheese, salt, banana leaves and rennet</u>
F.6.	Flow Rate. a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharge into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent. <u>50,000</u> gpd (_____ continuous or <u>XX</u> intermittent) b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent. <u>1,800</u> gpd (_____ continuous or <u>XX</u> intermittent)
F.7.	Pretreatment Standards. Indicate whether the SIU is subject to the following: a. Local limits <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No b. Categorical pretreatment standards <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If subject to categorical pretreatment standards, which category and subcategory? _____
F.8.	Problems at the Treatment Works Attributed to Waste Discharge by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, describe each episode. _____ _____

Sunshine's Pride Dairy, Inc.

Significant User Data

Opequon Water Reclamation Facility

VPDES Permit No. VA0065552

F4. Industrial Processes

Production of natural cheese and cheese products from whole milk and cream. Wastewater generated from plant sanitation, tank cleaning & CIP, and tanker truck cleaning will be collected in pretreatment interceptor and then discharged to the City of Winchester sanitary sewer collection system. Reverse osmosis filtrate from treatment of the cheese whey will also be discharged to the same pretreatment and discharge systems.

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: Trex Company, Inc.

Mailing Address: 3229 Shawnee Drive, Winchester, VA 22602

F.4. Industrial Processes. Describe all the industrial processes that affect or contribute to the SIU's discharge.

See Attached Sheet

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): wood/plastic composite boards for the construction of decks, picnic tables, benches, composite contruction material.

Raw material(s): Polyethylene scrap (grocery bags, film wrap, etc.) Wood chips are brought to the site and pulverized into sawdust. colorant (carbon black or ferric oxide) are additives

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharge into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

100,000 gpd (XX continuous or intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

3,000 gpd (XX continuous or intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits ☒ Yes ☐ No

b. Categorical pretreatment standards ☐ Yes ☒ No

If subject to categorical pretreatment standards, which category and subcategory?

F.8. Problems at the Treatment Works Attributed to Waste Discharge by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

☐ Yes ☒ No If yes, describe each episode.

Trex Company, Inc.

Significant User Data

Opequon Water Reclamation Facility

VPDES Permit No. VA0065552

F4. Industrial Processes

BUILDING # 1: This facility produces wood/plastic composite boards for construction of decks, picnic tables, benches, etc. Polyethylene scrap (grocery bags, film wrap, etc.) is brought to the site, separated and ground into "fluff". Wood chips are brought to the site and pulverized into sawdust. The wood and "fluff" are weighed, colorant (carbon black or ferric oxide) is added. The melted and mixed ingredients are extruded and conveyed through a cooling water trough. A hose directs a stream of water at the point the board is extruded for quick cooling, then the board travels through the trough. Water is sprayed on the board as it goes through the bath. Chillers have been installed, which have resulted in a decrease in water usage. The contact lines with chillers can recycle, but the problem with the other lines is the high temp of the water at the end of the process. Contact cooling water from cleaning and draining of the cooling troughs and periodic blowdown is discharged to the sanitary sewer. Process and sanitary lines discharge into the same manhole as separate waste streams. The process discharge line includes boiler blowdown and compressor water. Contact cooling water is discharged to the sanitary sewer via the process lines. Compressor condensate is also discharged to the sanitary sewer. Boiler blowdown is routed to a flash tank which overflows to the discharge pumps. The blowdown is pumped to the sanitary sewer via the process line. The boiler discharge has time to cool prior to pumping to the sanitary sewer. Last estimates indicate 10 – 15 gal. of boiler blowdown per day.

BUILDING # 2: R&D building. DI water from the Trex testing equipment and pilot-plant equipment is discharged.

BUILDING # 3: Bundle cover operation and hollow post extrusion line are housed in this building. White rail co-extrusion lines use the same processes as building #1

BUILDING # 4: Processes will be the same as in Building # 1. One line is installed. Boiler blowdown will be discharged to the sanitary sewer.

BUILDING # 5: Houses recycled plastic sorting, grading and conversion to polyethylene pellets used in the extrusion lines.

SIGNIFICANT INDUSTRIAL USER INFORMATION:

Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.

F.3. Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary.

Name: County of Frederick, Virginia – County Landfill

Mailing Address: 107 North Kent Street, Winchester, VA 22601

F.4. Industrial Processes. Describe all the industrial processes that affect or contribute to the SIU's discharge.

See Attached Sheet

F.5. Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge.

Principal product(s): Collection of solid wastes generated in Frederick and Clarke Counties and the City of Winchester

Raw material(s): Commercial, Industrial and Municipal solid wastes

F.6. Flow Rate.

a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharge into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

100,000 gpd (_____ continuous or XX intermittent)

b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent.

0 gpd (_____ continuous or _____ intermittent)

F.7. Pretreatment Standards. Indicate whether the SIU is subject to the following:

a. Local limits ☒ Yes ☐ No

b. Categorical pretreatment standards ☐ Yes ☒ No

If subject to categorical pretreatment standards, which category and subcategory?

F.8. Problems at the Treatment Works Attributed to Waste Discharge by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years?

☐ Yes ☒ No If yes, describe each episode.

County of Frederick, Virginia – County Landfill

Significant User Data

Opequon Water Reclamation Facility

VPDES Permit No. VA0065552

F4. Industrial Processes

The Frederick County Landfill receives solid wastes that are generated from Commercial, Industrial and Municipal sources located in Frederick and Clarke Counties and the City of Winchester. Leachate is generated by liquids in the waste and rainfall on the landfill cells. The liquids migrate through the waste mass and are collected via a network of under-laid piping and stone. The Leachate is then transported via gravity collection system to a pumping station where it is pumped to the on-site pretreatment facility. After pretreatment, the liquid is transferred to the Opequon WRF via force main connected to the Frederick County Sanitation Authority sanitary sewer collection system.

SIGNIFICANT INDUSTRIAL USER INFORMATION:	
Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.	
F.3.	Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary. Name: <u>Kraft Foods Global, Inc.</u> Mailing Address: <u>220 Park Center Drive, Winchester, VA 22603</u>
F.4.	Industrial Processes. Describe all the industrial processes that affect or contribute to the SIU's discharge. <u>See Attached Sheet</u>
F.5.	Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge. Principal product(s): <u>KoolAid, Kool Burst, Capri Sun</u> Raw material(s): <u>Water, High Fructose Corn Syrup, Fruit Juices & concentrates, Preservatives, Sucrose, Citric acid, Product colors, product flavors, Polyethylene resin, Mylar foil.</u>
F.6.	Flow Rate. a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharge into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent. <u>280,000</u> gpd (<u>XX</u> continuous or _____ intermittent) b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent. <u>7,500</u> gpd (<u>XX</u> continuous or _____ intermittent)
F.7.	Pretreatment Standards. Indicate whether the SIU is subject to the following: a. Local limits <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No b. Categorical pretreatment standards <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If subject to categorical pretreatment standards, which category and subcategory? _____
F.8.	Problems at the Treatment Works Attributed to Waste Discharge by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, describe each episode. _____ _____

Kraft Foods Global, Inc.

Significant User Data

Opequon Water Reclamation Facility

VPDES Permit No. VA0065552

F4. Industrial Processes

The Kraft Facility is a Ready-to-Drink beverage production facility. The only process discharge to the sanitary sewer is from overfilled pouches. Filled bottle and pouches are run through a bath to remove stickiness from the outside of the packages. Also, contributing to discharged waste is the CIP for equipment. The wash down procedure for the filling equipment is performed every week, plus on color change days. Lines are rinsed with a hot caustic solution, and the solution is recycled until spent. All of this cleaning water is discharged to the sanitary sewer. Boiler blowdown is also discharged to the sanitary sewer. Incoming water filter backwash is also discharged to the sanitary sewer. Discharge is continuously pH adjusted.

SIGNIFICANT INDUSTRIAL USER INFORMATION:	
Supply the following information for each SIU. If more than one SIU discharges to the treatment works, copy questions F.3 through F.8 and provide the information requested for each SIU.	
F.3.	Significant Industrial User Information. Provide the name and address of each SIU discharging to the treatment works. Submit additional pages as necessary. Name: <u>O'Sullivan Films, Inc.</u> Mailing Address: <u>1944 Valley Avenue, Winchester, VA 22601</u>
F.4.	Industrial Processes. Describe all the industrial processes that affect or contribute to the SIU's discharge. <u>See Attached Sheet</u>
F.5.	Principal Product(s) and Raw Material(s). Describe all of the principal processes and raw materials that affect or contribute to the SIU's discharge. Principal product(s): <u>Vinyl sheet material formation; cut to specific size and laminated, painted and/or printed, RCRA wastes</u> Raw material(s): <u>Plastic resin, plasticizers, fillers, pigments, stabilizers, and processing aids, water-based adhesives, solvent-based products, paints.</u>
F.6.	Flow Rate. a. Process wastewater flow rate. Indicate the average daily volume of process wastewater discharge into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent. <u>49,000</u> gpd (<u>XX</u> continuous or _____ intermittent) b. Non-process wastewater flow rate. Indicate the average daily volume of non-process wastewater flow discharged into the collection system in gallons per day (gpd) and whether the discharge is continuous or intermittent. <u>6,000</u> gpd (<u>XX</u> continuous or _____ intermittent)
F.7.	Pretreatment Standards. Indicate whether the SIU is subject to the following: a. Local limits <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No b. Categorical pretreatment standards <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If subject to categorical pretreatment standards, which category and subcategory? _____
F.8.	Problems at the Treatment Works Attributed to Waste Discharge by the SIU. Has the SIU caused or contributed to any problems (e.g., upsets, interference) at the treatment works in the past three years? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, describe each episode. _____ _____

O'Sullivan Films, Inc.

Significant User Data

Opequon Water Reclamation Facility

VPDES Permit No. VA0065552

F4. Industrial Processes

All Plastics wastewater is sent to the sanitary sewer. Non contact cooling water from cooling towers and refrigerated chilling units is discharged to the sanitary system via blowdown and/or system clean-up. Contact cooling water is discharged from dip tanks that are used to directly cool plastic rolls. No chemicals are added to the contact cooling water. Truck and Forklift maintenance is done in an onsite shop. Wastewater from the shop floor drains into a pit to allow solids and oil & grease to separate, and the liquid component is drained to the sanitary sewer.

O'Sullivan Films, Inc. is a producer of RCRA waste. These wastes are not discharged to the sanitary wastewater collection system but are contained on site and shipped off-site for disposal. RCRA wastes are shipped via truck.

Chemtron Corp: acids, isocyanates, mercury

AERC from Frederick County Landfill: universal waste (light bulbs, batteries, computer monitors, etc.)

Recoil: Oil and water

Safety Kleen: waste oils and ;parts cleaner

Potomac Environmental is transport broker for hazardous/non-hazardous materials, oils and oily rags disposed of or recycled off-site.

Southeastern OMNI Chemical and Solvent: solvent glue, ink waste, base glue, paint scrapings, waste solvents and rag waste.

Potomac Environmental: Still bottoms are collected in 55-gallon drums for disposal

Aerosol cans are recycled

Chem Met Services and Environmental Quality: Lab packs

Spirit Services: Currently recycles on site used oil from Banbury mixers; approximately 12 drums per year

SECTION 3
SLUDGE PERMIT

VPDES SEWAGE SLUDGE PERMIT APPLICATION FORM

SCREENING INFORMATION

This application is divided into sections. Sections A pertain to all applicants. The applicability of Sections B, C and D depend on your facility's sewage sludge use or disposal practices. The information provided on this page will help you determine which sections to fill out.

1. All applicants must complete Section A (General Information).

2. Will this facility generate sewage sludge? ☒ Yes ☐ No

Will this facility derive a material from sewage sludge? ☐ Yes ☒ No

If you answered Yes to either, complete Section B (Generation Of Sewage Sludge Or Preparation Of A Material Derived From Sewage Sludge).

3. Will this facility apply sewage sludge to the land? ☐ Yes ☒ No

Will sewage sludge from this facility be applied to the land? ☐ Yes ☒ No

If you answered No to both questions above, skip Section C.

If you answered Yes to either, answer the following three questions:

a. Will the sewage sludge from this facility meet the ceiling concentrations, pollutant concentrations, Class A pathogen reduction requirements and one of the vector attraction reduction requirements 1-8, as identified in the instructions?

☐ Yes ☐ No

b. Will sewage sludge from this facility be placed in a bag or other container for sale or give-away for application to the land? ☐ Yes ☐ No

c. Will sewage sludge from this facility be sent to another facility for treatment or blending? ☐ Yes ☐ No

If you answered No to all three, complete Section C (Land Application Of Bulk Sewage Sludge).

If you answered Yes to a, b or c, skip Section C.

4. Do you own or operate a surface disposal site? ☐ Yes ☒ No

If Yes, complete Section D (Surface Disposal).

SECTION A. GENERAL INFORMATION

All applicants must complete this section.

1. Facility Information.

- a. Facility name: Opequon Water Reclamation Facility
- b. Contact person: Mr. Donald Riggleman
Title: Facility Manager
Phone: (540) 665-9867
- c. Mailing address:
Street or P.O. Box: 3100 Berryville Pike
City or Town: Winchester State: VA Zip: 22603
- d. Facility location:
Street or Route #: 3100 Berryville Pike
County: Frederick County
City or Town: Winchester State: VA Zip: 22603
- e. Is this facility a Class I sludge management facility? ☒ Yes ☐ No
- f. Facility design flow rate: 12.6 mgd
- g. Total population served: 48,600
- h. Indicate the type of facility:
☒ Publicly owned treatment works (POTW)
☐ Privately owned treatment works
☐ Federally owned treatment works Blending or treatment operation
☐ Surface disposal site
☐ Other (describe): _____

2. Applicant Information. If the applicant is different from the above, provide the following:

- a. Applicant name: Frederick-Winchester Service Authority
- b. Mailing address: P.O. Box 43
Street or P.O. Box: _____
City or Town: Winchester State: VA Zip: 22604
- c. Contact person: Jesse W. Moffett
Title: Executive Director
Phone: (540) 722-3579
- d. Is the applicant the owner or operator (or both) of this facility?
☒ owner ☐ operator
- e. Should correspondence regarding this permit be directed to the facility or the applicant? (Check one)
☐ facility ☒ applicant

3. Permit Information.

- a. Facility's VPDES permit number (if applicable): VA 006552
- b. List on this form or an attachment, all other federal, state or local permits or construction approvals received or applied for that regulate this facility's sewage sludge management practices:

Permit Number:

Type of Permit

4. Indian Country. Does any generation, treatment, storage, application to land or disposal of sewage sludge from this facility occur in Indian Country? ☐ Yes ☒ No If yes, describe:

5. Topographic Map. Provide a topographic map or maps (or other appropriate maps if a topographic map is unavailable) that shows the following information. Maps should include the area one mile beyond all property boundaries of the facility:

a. Location of all sewage sludge management facilities, including locations where sewage sludge is generated, stored, treated, or disposed.

b. Location of all wells, springs, and other surface water bodies listed in public records or otherwise known to the applicant within 1/4 mile of the property boundaries.
6. Line Drawing. Provide a line drawing and/or a narrative description that identifies all sewage sludge processes that will be employed during the term of the permit including all processes used for collecting, dewatering, storing, or treating sewage sludge, the destination(s) of all liquids and solids leaving each unit, and all methods used for pathogen reduction and vector attraction reduction.
7. Contractor Information. Are any operational or maintenance aspects of this facility related to sewage sludge generation, treatment, use or disposal the responsibility of a contractor? ☐ Yes ☒ No

If yes, provide the following for each contractor (attach additional pages if necessary).

Name:

Mailing address:

Street or P.O. Box:

City or Town: State: Zip:

Phone: ()

Contractor's Federal, State or Local Permit Number(s) applicable to this facility's sewage sludge:

If the contractor is responsible for the use and/or disposal of the sewage sludge, provide a description of the service to be provided to the applicant and the respective obligations of the applicant and the contractor(s).

8. Pollutant Concentrations. Using the table below or a separate attachment, provide sewage sludge monitoring data for the pollutants which limits in sewage sludge have been established in 9 VAC 25-31-10 et seq. for this facility's expected use or disposal practices. All data must be based on three or more samples taken at least one month apart and must be no more than four and one-half years old.

POLLUTANT	CONCENTRATION (mg/kg dry weight)	SAMPLE DATE	ANALYTICAL METHOD	DETECTION LEVEL FOR ANALYSIS
Arsenic	See Attached Summary Sheet of Sludge Testing			
Cadmium				
Chromium				
Copper				
Lead				
Mercury				
Molybdenum				
Nickel				
Selenium				
Zinc				

9. Certification. Read and submit the following certification statement with this application. Refer to the instructions to determine who is an officer for purposes of this certification. Indicate which parts of the application you have completed and are submitting:

☒ Section A (General Information)

☒ Section B (Generation of Sewage Sludge or Preparation of a Material Derived from Sewage Sludge)

☐ Section C (Land Application of Bulk Sewage Sludge)

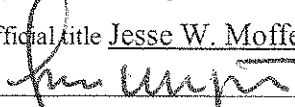
☐ Section D (Surface Disposal)

FACILITY NAME: OPEQUON WATER RECLAMATION FACILITY

VPDES PERMIT NUMBER: VA0065552

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name and official title Jesse W. Moffett – Executive Director - Frederick-Winchester Service Authority

Signature  Date Signed 8/17/10

Telephone number (540) 722 -3579

Upon request of the department, you must submit any other information necessary to assess sewage sludge use or disposal practices at your facility or identify appropriate permitting requirements.

**SECTION B. GENERATION OF SEWAGE SLUDGE OR PREPARATION
OF A MATERIAL DERIVED FROM SEWAGE SLUDGE****Complete this section if your facility generates sewage sludge or derives a material from sewage sludge**

1. Amount Generated On Site.
Total dry metric tons per 365-day period generated at your facility: 4,875.31 dry metric tons
2. Amount Received from Off Site. If your facility receives sewage sludge from another facility for treatment, use or disposal, provide the following information for each facility from which sewage sludge is received. If you receive sewage sludge from more than one facility, attach additional pages as necessary.
 - a. Facility name: _____
 - b. Contact Person: _____
Title: _____
Phone () _____
 - c. Mailing address:
Street or P.O. Box: _____
City or Town: _____ State: _____ Zip: _____
 - d. Facility Address: _____
(not P.O. Box) _____
 - e. Total dry metric tons per 365-day period received from this facility: _____ dry metric tons
 - f. Describe, on this form or on another sheet of paper, any treatment processes known to occur at the off-site facility, including blending activities and treatment to reduce pathogens or vector attraction characteristics:

3. Treatment Provided at Your Facility.
 - a. Which class of pathogen reduction is achieved for the sewage sludge at your facility?
☒ Class A ☐ Class B ☐ Neither or unknown
 - b. Describe, on this form or another sheet of paper, any treatment processes used at your facility to reduce pathogens in sewage sludge: Lime Stabilization of sludge resulting in elevated pH is undertaken prior to dewatering of sludge
 - c. Which vector attraction reduction option is met for the sewage sludge at your facility?
☐ Option 1 (Minimum 38 percent reduction in volatile solids)
☐ Option 2 (Anaerobic process, with bench-scale demonstration)
☐ Option 3 (Aerobic process, with bench-scale demonstration)
☐ Option 4 (Specific oxygen uptake rate for aerobically digested sludge)
☐ Option 5 (Aerobic processes plus raised temperature)
☒ Option 6 (Raise pH to 12 and retain at 11.5)
☐ Option 7 (75 percent solids with no unstabilized solids)
☐ Option 8 (90 percent solids with unstabilized solids)
☐ None or unknown
 - d. Describe, on this form or another sheet of paper, any treatment processes used at your facility to reduce vector attraction properties of sewage sludge: Lime Stabilization of sludge resulting in elevated pH is undertaken prior to dewatering of sludge
 - e. Describe, on this form or another sheet of paper, any other sewage sludge treatment activities, including blending, not identified in a - d above: _____

4. Preparation of Sewage Sludge Meeting Ceiling and Pollutant Concentrations, Class A Pathogen Requirements and One of Vector Attraction Reduction Options 1-8 (EQ Sludge).
(If sewage sludge from your facility does not meet all of these criteria, skip Question 4.)
 - a. Total dry metric tons per 365-day period of sewage sludge subject to this section that is applied to the land: -
_____ dry metric tons
 - b. Is sewage sludge subject to this section placed in bags or other containers for sale or give-away?
☐ Yes ☐ No

5. Sale or Give-Away in a Bag or Other Container for Application to the Land.
(Complete this question if you place sewage sludge in a bag or other container for sale or give-away prior to land application. Skip this question if sewage sludge is covered in Question 4.)
- a. Total dry metric tons per 365-day period of sewage sludge placed in a bag or other container at your facility for sale or give-away for application to the land: _____ dry metric tons
- b. Attach, with this application, a copy of all labels or notices that accompany the sewage sludge being sold or given away in a bag or other container for application to the land.
6. Shipment Off Site for Treatment or Blending.
(Complete this question if sewage sludge from your facility is sent to another facility that provides treatment or blending. This question does not apply to sewage sludge sent directly to a land application or surface disposal site. Skip this question if the sewage sludge is covered in Questions 4 or 5. If you send sewage sludge to more than one facility, attach additional sheets as necessary.)
- a. Receiving facility name: _____
- b. Facility contact: _____
Title: _____
Phone: () _____
- c. Mailing address:
Street or P.O. Box: _____
City or Town: _____ State: _____ Zip: _____
- d. Total dry metric tons per 365-day period of sewage sludge provided to receiving facility: _____ dry metric tons
- e. List, on this form or an attachment, the receiving facility's VPDES permit number as well as the numbers of all other federal, state or local permits that regulate the receiving facility's sewage sludge use or disposal practices:
- | Permit Number: | Type of Permit |
|----------------|----------------|
| _____ | _____ |
| _____ | _____ |
- f. Does the receiving facility provide additional treatment to reduce pathogens in sewage sludge from your facility? ____ Yes ____ No
Which class of pathogen reduction is achieved for the sewage sludge at the receiving facility?
____ Class A ____ Class B ____ Neither or unknown
Describe, on this form or another sheet of paper, any treatment processes used at the receiving facility to reduce pathogens in sewage sludge: _____
- g. Does the receiving facility provide additional treatment to reduce vector attraction characteristics of the sewage sludge? ____ Yes ____ No
Which vector attraction reduction option is met for the sewage sludge at the receiving facility?
____ Option 1 (Minimum 38 percent reduction in volatile solids)
____ Option 2 (Anaerobic process, with bench-scale demonstration)
____ Option 3 (Aerobic process, with bench-scale demonstration)
____ Option 4 (Specific oxygen uptake rate for aerobically digested sludge)
____ Option 5 (Aerobic processes plus raised temperature)
____ Option 6(Raise pH to 12 and retain at 11.5)
____ Option 7 (75 percent solids with no unstabilized solids)
____ Option 8(90 percent solids with unstabilized solids)
____ None unknown
Describe, on this form or another sheet of paper, any treatment processes used at the receiving facility to reduce vector attraction properties of sewage sludge: _____
- h. Does the receiving facility provide any additional treatment or blending not identified in for g above?
____ Yes ____ No
If yes, describe, on this form or another sheet of paper, the treatment processes not identified in for g above: _____
- i. If you answered yes to f., g or h above, attach a copy of any information you provide to the receiving facility to comply with the "notice and necessary information" requirement of 9 VAC 25-3 1-530.G.

- j. Does the receiving facility place sewage sludge from your facility in a bag or other container for sale or give away for application to the land? Yes No
If yes, provide a copy of all labels or notices that accompany the product being sold or given away.
- k. Will the sewage sludge be transported to the receiving facility in a truck-mounted watertight tank normally used for such purposes? Yes No. If no, provide description and specification on the vehicle used to transport the sewage sludge to the receiving facility.
Show the haul route(s) on a location map or briefly describe the haul route below and indicate the days of the week and the times of the day sewage sludge will be transported.

7. Land Application of Bulk Sewage Sludge.
(Complete Question 7.a if sewage sludge from your facility is applied to the land, unless the sewage sludge is covered in Questions 4, 5 or 6; complete Question 7.b, c & d only if you are responsible for land application of sewage sludge.)
- a. Total dry metric tons per 365-day period of sewage sludge applied to all land application sites: dry metric tons
- b. Do you identify all land application sites in Section C of this application? Yes No
If no, submit a copy of the Land Application Plan (LAP) with this application (LAP should be prepared in accordance with the instructions).
- c. Are any land application sites located in States other than Virginia? Yes No
If yes, describe, on this form or on another sheet of paper, how you notify the permitting authority for the States where the land application sites are located. Provide a copy of the notification.
- d. Attach a copy of any information you provide to the owner or lease holder of the land application sites to comply with the "notice and necessary" information requirement of 9 VAC 25-31-530 F and/or H (Examples may be obtained in Appendix IV).

8. Surface Disposal.
(Complete Question 8 if sewage sludge from your facility is placed on a surface disposal site.)
- a. Total dry metric tons per 365-day period of sewage sludge from your facility placed on all surface disposal sites: dry metric tons
- b. Do you own or operate all surface disposal sites to which you send sewage sludge for disposal? Yes No
If no, answer questions - g for each surface disposal site that you do not own or operate. If you send sewage sludge to more than one surface disposal site, attach additional pages as necessary.
- c. Site name or number:
- d. Contact person:
Title:
Phone: ()
Contact is: Site Owner Site operator
- e. Mailing address.
Street or P.O. Box:
City or Town: State: Zip:
- f. Total dry metric tons per 365-day period of sewage sludge from your facility placed on this surface disposal site: dry metric tons
- g. List, on this form or an attachment, the surface disposal site VPDES permit number as well as the numbers of all other federal, state or local permits that regulate the sewage sludge use or disposal practices at the surface disposal site:
Permit Number: Type of Permit

9. Incineration.
(Complete Question 9 if sewage sludge from your facility is fired in a sewage sludge incinerator.)
- a. Total dry metric tons per 365-day period of sewage sludge from your facility fired in a sewage sludge incinerator: dry metric tons

- b.

Do you own or operate all sewage sludge incinerators in which sewage sludge from your facility is fired?
☐ Yes ☐ No
If no, answer questions c - g for each sewage sludge incinerator that you do not own or operate. If you send sewage sludge to more than one sewage sludge incinerator, attach additional pages as necessary.
- c.

Incinerator name or number: _____
- d.

Contact person: _____
Title: _____
Phone: () _____
Contact is: ☐ Incinerator Owner ☐ Incinerator Operator
- e.

Mailing address.
Street or P.O. Box: _____
City or Town: _____ State: _____ Zip: _____
- f.

Total dry metric tons per 365-day period of sewage sludge from your facility fired in this sewage sludge incinerator: _____ dry metric tons
- g.

List on this form or an attachment the numbers of all other federal, state or local permits that regulate the firing of sewage sludge at this incinerator:

Permit Number:	Type of Permit
_____	_____
_____	_____

10.

Disposal in a Municipal Solid Waste Landfill.
(Complete Question 10 if sewage sludge from your facility is placed on a municipal solid waste landfill. Provide the following information for each municipal solid waste landfill on which sewage sludge from your facility is placed. If sewage sludge is placed on more than one municipal solid waste landfill, attach additional pages as necessary.)
- a.

Landfill name: Frederick County Regional Landfill
- b.

Contact person: Mr. Steven Frye
Title: Landfill Manager
Phone: (540) 665-5658
Contact is: ☐ Landfill Owner ☒ Landfill Operator
- c.

Mailing address. Street or P.O. Box: 280 Landfill Road
City or Town: Winchester State: VA Zip: 22602
- d.

Landfill location.
Street or Route #: Located off of Sulfur Spring Road
County: Frederick
City or Town: Winchester State: VA Zip: 22602
- e.

Total dry metric tons per 365-day period of sewage sludge placed in this municipal solid waste landfill:
4,875.31 dry metric tons
- f.

List, on this form or an attachment, the numbers of all federal, state or local permits that regulate the operation of this municipal solid waste landfill:

Permit Number:	Type of Permit
<u>529</u>	<u>Solid Waste</u>
<u>VRO81312</u>	<u>Air</u>
<u>VA0088471</u>	<u>Wastewater</u>
- g.

Does sewage sludge meet applicable requirements in the Virginia Solid Waste Management Regulation, 9 VAC 20-80-10 et seq., concerning the quality of materials disposed in a municipal solid waste landfill?
☒ Yes ☐ No
- h.

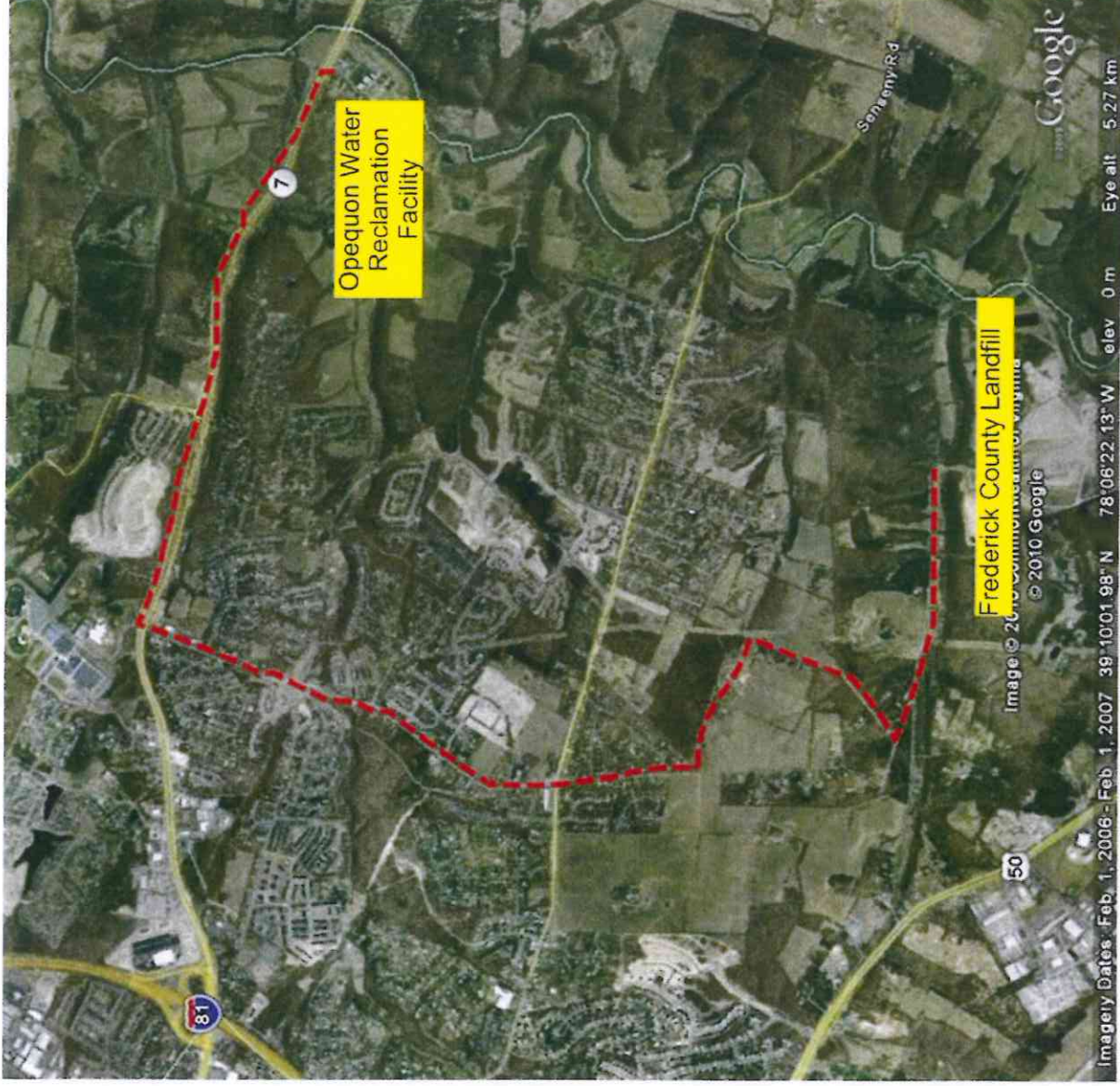
Does the municipal solid waste landfill comply with all applicable criteria set forth in the Virginia Solid Waste Management Regulation, 9 VAC 20-80-10 et seq.? ☒ Yes ☐ No
- i.

Will the vehicle bed or other container used to transport sewage sludge to the municipal solid waste landfill be watertight and covered? ☒ Yes ☐ No
Show the haul route(s) on a location map or briefly describe the route below and indicate the days of the week and time of the day sewage sludge will be transported. See Attached Routing Map

Opequon Water Reclamation Facility - Sludge Disposal Route

Sludge Hauling Route

- 1) Exit Opequon Facility onto Route 7 West
- 2) Turn left onto Greenwood Road (SR 656)
- 3) Follow Greenwood Road to intersection with Sulphur Spring Road (SR 655)
- 4) Turn left on Sulphur Spring Road to Landfill Road. Entrance to Frederick County Landfill.



Frederick-Winchester Service Authority

Facility: Opequon Water Reclamation Facility
Permit Number: VAL0065552

Sludge Disposal - January 1, 2009 to December 31, 2009

Month	wet tons	% solids	dry tons	conv.	Metric dry tons
January	1,231.69	31.80%	391.68	0.9072	355.33
February	1,092.57	31.10%	339.79	0.9072	308.26
March	1,685.93	31.50%	531.07	0.9072	481.78
April	1,376.71	32.10%	441.92	0.9072	400.91
May	1,545.72	32.70%	505.45	0.9072	458.54
June	1,283.87	35.30%	453.21	0.9072	411.15
July	1,140.93	34.80%	397.04	0.9072	360.20
August	997.10	34.60%	345.00	0.9072	312.98
September	1,174.79	34.90%	410.00	0.9072	371.95
October	1,131.81	33.80%	382.55	0.9072	347.05
November	1,033.77	34.20%	353.55	0.9072	320.74
December	1,058.99	30.60%	324.05	0.9072	293.98
Totals	14,753.88	33.12%	4,875.31		4,422.88
Prior Yr.	14,645.08				
	108.80	0.74%			

5 Year Sludge Analysis Summary

Pollutant	2006	2007	2008	2009	2010	5 Year Avg.
Arsenic	1.45	2.00	2.17	24.01	4.58	7.59
Cadmium	1.67	2.83	1.00	1.57	1.59	1.74
Chromium	34.50	33.00	30.83	23.70	27.70	29.89
Copper	260.33	284.33	269.17	265.98	279.25	271.10
Lead	23.60	12.50	9.00	8.52	6.88	11.52
Mercury	0.40	0.43	0.42	0.23	0.07	0.32
Molybdenum	8.83	8.40	6.00	5.22	3.85	6.31
Nickel	24.17	21.50	19.33	15.87	18.05	19.77
Selenium	1.73	1.33	2.07	7.56	5.53	3.46
Zinc	238.83	286.33	228.33	210.29	240.25	239.79
	Concentrations (mg/kg dry weight)					

2006 Sludge Analysis

Pollutant	Concentration (mg/kg dry weight)	Sample Date	Analytical Method
Arsenic	1.3	January 24, 2006	SW 846-7061A
Cadmium	1	January 24, 2006	SW 846-6010B
Chromium	34	January 24, 2006	SW 846-6010B
Copper	197	January 24, 2006	SW 846-6010B
Lead		January 24, 2006	SW 846-6010B
Mercury	0.21	January 24, 2006	SW 846-7471A
Molybdenum	8	January 24, 2006	SW 846-6010B
Nickel	20	January 24, 2006	SW 846-6010B
Selenium	1.78	January 24, 2006	SW 846-7741A
Zinc	152	January 24, 2006	SW 846-6010B
Pollutant	Concentration (mg/kg dry weight)	Sample Date	Analytical Method
Arsenic	1.5	April 27, 2006	SW 846-7061A
Cadmium	1	April 27, 2006	SW 846-6010B
Chromium	26	April 27, 2006	SW 846-6010B
Copper	291	April 27, 2006	SW 846-6010B
Lead	14	April 27, 2006	SW 846-6010B
Mercury	0.5	April 27, 2006	SW 846-7471A
Molybdenum	7	April 27, 2006	SW 846-6010B
Nickel	24	April 27, 2006	SW 846-6010B
Selenium	2.1	April 27, 2006	SW 846-7741A
Zinc	279	April 27, 2006	SW 846-6010B
Pollutant	Concentration (mg/kg dry weight)	Sample Date	Analytical Method
Arsenic	0.8	May 24, 2006	SW 846-7061A
Cadmium	1	May 24, 2006	SW 846-6010B
Chromium	25	May 24, 2006	SW 846-6010B
Copper	205	May 24, 2006	SW 846-6010B
Lead	39	May 24, 2006	SW 846-6010B
Mercury	0.2	May 24, 2006	SW 846-7471A
Molybdenum	6	May 24, 2006	SW 846-6010B
Nickel	16	May 24, 2006	SW 846-6010B
Selenium	1.1	May 24, 2006	SW 846-7741A
Zinc	156	May 24, 2006	SW 846-6010B

2006 Sludge Analysis

Pollutant	Concentration (mg/kg dry weight)	Sample Date	Analytical Method
Arsenic	1.4	July 25, 2006	SW 846-7061A
Cadmium	2.0	July 25, 2006	SW 846-6010B
Chromium	40	July 25, 2006	SW 846-6010B
Copper	273	July 25, 2006	SW 846-6010B
Lead	21	July 25, 2006	SW 846-6010B
Mercury	0.5	July 25, 2006	SW 846-7471A
Molybdenum	9	July 25, 2006	SW 846-6010B
Nickel	23	July 25, 2006	SW 846-6010B
Selenium	1.4	July 25, 2006	SW 846-7741A
Zinc	287	July 25, 2006	SW 846-6010B
Pollutant	Concentration (mg/kg dry weight)	Sample Date	Analytical Method
Arsenic	1.8	September 12, 2006	SW 846-7061A
Cadmium	3	September 12, 2006	SW 846-6010B
Chromium	47	September 12, 2006	SW 846-6010B
Copper	322	September 12, 2006	SW 846-6010B
Lead	29	September 12, 2006	SW 846-6010B
Mercury	0.4	September 12, 2006	SW 846-7471A
Molybdenum	12	September 12, 2006	SW 846-6010B
Nickel	33	September 12, 2006	SW 846-6010B
Selenium	1.3	September 12, 2006	SW 846-7741A
Zinc	368	September 12, 2006	SW 846-6010B
Pollutant	Concentration (mg/kg dry weight)	Sample Date	Analytical Method
Arsenic	1.9	November 14, 2006	SW 846-7061A
Cadmium	2.0	November 14, 2006	SW 846-6010B
Chromium	35	November 14, 2006	SW 846-6010B
Copper	274	November 14, 2006	SW 846-6010B
Lead	15	November 14, 2006	SW 846-6010B
Mercury	0.6	November 14, 2006	SW 846-7471A
Molybdenum	11	November 14, 2006	SW 846-6010B
Nickel	29	November 14, 2006	SW 846-6010B
Selenium	2.7	November 14, 2006	SW 846-7741A
Zinc	191	November 14, 2006	SW 846-6010B

- yellow denotes less than detection limit

2007 Sludge Analysis

Pollutant	Concentration (mg/kg dry weight)	Sample Date	Analytical Method
Arsenic	1.7	January 30, 2007	SW 846-7061A
Cadmium	1.0	January 30, 2007	SW 846-6010B
Chromium	34	January 30, 2007	SW 846-6010B
Copper	232	January 30, 2007	SW 846-6010B
Lead	5	January 30, 2007	SW 846-6010B
Mercury	0.4	January 30, 2007	SW 846-7471A
Molybdenum	8	January 30, 2007	SW 846-6010B
Nickel	28	January 30, 2007	SW 846-6010B
Selenium	1.1	January 30, 2007	SW 846-7741A
Zinc	214	January 30, 2007	SW 846-6010B
Pollutant	Concentration (mg/kg dry weight)	Sample Date	Analytical Method
Arsenic	1.7	March 22, 2007	SW 846-7061A
Cadmium	3.0	March 22, 2007	SW 846-6010B
Chromium	42	March 22, 2007	SW 846-6010B
Copper	291	March 22, 2007	SW 846-6010B
Lead	26	March 22, 2007	SW 846-6010B
Mercury	0.4	March 22, 2007	SW 846-7471A
Molybdenum	11	March 22, 2007	SW 846-6010B
Nickel	31	March 22, 2007	SW 846-6010B
Selenium	1.9	March 22, 2007	SW 846-7741A
Zinc	242	March 22, 2007	SW 846-6010B
Pollutant	Concentration (mg/kg dry weight)	Sample Date	Analytical Method
Arsenic	2.2	May 17, 2007	SW 846-7061A
Cadmium	2.0	May 17, 2007	SW 846-6010B
Chromium	44	May 17, 2007	SW 846-6010B
Copper	321	May 17, 2007	SW 846-6010B
Lead	17	May 17, 2007	SW 846-6010B
Mercury	0.5	May 17, 2007	SW 846-7471A
Molybdenum	12	May 17, 2007	SW 846-6010B
Nickel	23	May 17, 2007	SW 846-6010B
Selenium	1.8	May 17, 2007	SW 846-7741A
Zinc	420	May 17, 2007	SW 846-6010B

2007 Sludge Analysis

Pollutant	Concentration (mg/kg dry weight)	Sample Date	Analytical Method
Arsenic	2.4	July 23, 2007	SW 846-7061A
Cadmium	1	July 23, 2007	SW 846-6010B
Chromium	23	July 23, 2007	SW 846-6010B
Copper	300	July 23, 2007	SW 846-6010B
Lead	10	July 23, 2007	SW 846-6010B
Mercury	0.5	July 23, 2007	SW 846-7471A
Molybdenum	5	July 23, 2007	SW 846-6010B
Nickel	15	July 23, 2007	SW 846-6010B
Selenium	2.1	July 23, 2007	SW 846-7741A
Zinc	295	July 23, 2007	SW 846-6010B
Pollutant	Concentration (mg/kg dry weight)	Sample Date	Analytical Method
Arsenic	1.9	September 11, 2007	SW 846-7061A
Cadmium	5	September 11, 2007	SW 846-6010B
Chromium	31	September 11, 2007	SW 846-6010B
Copper	336	September 11, 2007	SW 846-6010B
Lead	10	September 11, 2007	SW 846-6010B
Mercury	0.4	September 11, 2007	SW 846-7471A
Molybdenum	6	September 11, 2007	SW 846-6010B
Nickel	18	September 11, 2007	SW 846-6010B
Selenium	0.1	September 11, 2007	SW 846-7741A
Zinc	304	September 11, 2007	SW 846-6010B
Pollutant	Concentration (mg/kg dry weight)	Sample Date	Analytical Method
Arsenic	2.1	November 13, 2007	SW 846-7061A
Cadmium	5	November 13, 2007	SW 846-6010B
Chromium	24	November 13, 2007	SW 846-6010B
Copper	226	November 13, 2007	SW 846-6010B
Lead	7	November 13, 2007	SW 846-6010B
Mercury	0.4	November 13, 2007	SW 846-7471A
Molybdenum	<5	November 13, 2007	SW 846-6010B
Nickel	14	November 13, 2007	SW 846-6010B
Selenium	1	November 13, 2007	SW 846-7741A
Zinc	243	November 13, 2007	SW 846-6010B

-yellow denotes less than detection limit

2008 Sludge Analysis

Pollutant	Concentration (mg/kg dry weight)	Sample Date	Analytical Method
Arsenic	2.3	January 2, 2008	SW 846-7061A
Cadmium	1	January 2, 2008	SW 846-6010B
Chromium	30	January 2, 2008	SW 846-6010B
Copper	209	January 2, 2008	SW 846-6010B
Lead	6	January 2, 2008	SW 846-6010B
Mercury	0.4	January 2, 2008	SW 846-7471A
Molybdenum	5	January 2, 2008	SW 846-6010B
Nickel	16	January 2, 2008	SW 846-6010B
Selenium	1	January 2, 2008	SW 846-7741A
Zinc	179	January 2, 2008	SW 846-6010B
Pollutant	Concentration (mg/kg dry weight)	Sample Date	Analytical Method
Arsenic	2.0	March 5, 2008	SW 846-7061A
Cadmium	1	March 5, 2008	SW 846-6010B
Chromium	26	March 5, 2008	SW 846-6010B
Copper	207	March 5, 2008	SW 846-6010B
Lead	5	March 5, 2008	SW 846-6010B
Mercury	0.4	March 5, 2008	SW 846-7471A
Molybdenum	5	March 5, 2008	SW 846-6010B
Nickel	15	March 5, 2008	SW 846-6010B
Selenium	1	March 5, 2008	SW 846-7741A
Zinc	160	March 5, 2008	SW 846-6010B
Pollutant	Concentration (mg/kg dry weight)	Sample Date	Analytical Method
Arsenic	2.2	May 2, 2008	SW 846-7061A
Cadmium	1	May 2, 2008	SW 846-6010B
Chromium	31	May 2, 2008	SW 846-6010B
Copper	229	May 2, 2008	SW 846-6010B
Lead	15	May 2, 2008	SW 846-6010B
Mercury	0.5	May 2, 2008	SW 846-7471A
Molybdenum	5	May 2, 2008	SW 846-6010B
Nickel	19	May 2, 2008	SW 846-6010B
Selenium	1.1	May 2, 2008	SW 846-7741A
Zinc	206	May 2, 2008	SW 846-6010B

2008 Sludge Analysis

Pollutant	Concentration (mg/kg dry weight)	Sample Date	Analytical Method
Arsenic	2.6	July 1, 2008	SW 846-7061A
Cadmium	1.0	July 1, 2008	SW 846-6010B
Chromium	27	July 1, 2008	SW 846-6010B
Copper	259	July 1, 2008	SW 846-6010B
Lead	10	July 1, 2008	SW 846-6010B
Mercury	0.4	July 1, 2008	SW 846-7471A
Molybdenum	5	July 1, 2008	SW 846-6010B
Nickel	19	July 1, 2008	SW 846-6010B
Selenium	1.7	July 1, 2008	SW 846-7741A
Zinc	229	July 1, 2008	SW 846-6010B
Pollutant	Concentration (mg/kg dry weight)	Sample Date	Analytical Method
Arsenic	1.6	October 8, 2008	SW 846-7061A
Cadmium	1	October 8, 2008	SW 846-6010B
Chromium	39	October 8, 2008	SW 846-6010B
Copper	318	October 8, 2008	SW 846-6010B
Lead	5	October 8, 2008	SW 846-6010B
Mercury	0.4	October 8, 2008	SW 846-7471A
Molybdenum	10	October 8, 2008	SW 846-6010B
Nickel	25	October 8, 2008	SW 846-6010B
Selenium	5.2	October 8, 2008	SW 846-7741A
Zinc	252	October 8, 2008	SW 846-6010B
Pollutant	Concentration (mg/kg dry weight)	Sample Date	Analytical Method
Arsenic	2.3	November 25, 2008	SW 846-7061A
Cadmium	1	November 25, 2008	SW 846-6010B
Chromium	32	November 25, 2008	SW 846-6010B
Copper	393	November 25, 2008	SW 846-6010B
Lead	13	November 25, 2008	SW 846-6010B
Mercury	0.4	November 25, 2008	SW 846-7471A
Molybdenum	6	November 25, 2008	SW 846-6010B
Nickel	22	November 25, 2008	SW 846-6010B
Selenium	2.4	November 25, 2008	SW 846-7741A
Zinc	344	November 25, 2008	SW 846-6010B

- yellow denotes less than detection limit

2009 Sludge Analysis

Pollutant	Concentration (mg/kg dry weight)	Sample Date	Analytical Method
Arsenic	1.5	January 5, 2009	SW 846-7061A
Cadmium	1	January 5, 2009	SW 846-6010B
Chromium	26	January 5, 2009	SW 846-6010B
Copper	283	January 5, 2009	SW 846-6010B
Lead	6	January 5, 2009	SW 846-6010B
Mercury	0.4	January 5, 2009	SW 846-7471A
Molybdenum	5	January 5, 2009	SW 846-6010B
Nickel	15	January 5, 2009	SW 846-6010B
Selenium	3.7	January 5, 2009	SW 846-7741A
Zinc	236	January 5, 2009	SW 846-6010B
Pollutant	Concentration (ug/g dry weight)	Sample Date	Analytical Method
Arsenic	46	March 3, 2009	SW 846-60
Cadmium	2	March 3, 2009	SW 846-60
Chromium	24.9	March 3, 2009	SW 846-60
Copper	258	March 3, 2009	SW 846-60
Lead	4	March 3, 2009	SW 846-60
Mercury	0.215	March 3, 2009	SW 846-60
Molybdenum	5.56	March 3, 2009	SW 846-60
Nickel	15.2	March 3, 2009	SW 846-60
Selenium	4	March 3, 2009	SW 846-60
Zinc	151	March 3, 2009	SW 846-60
Pollutant	Concentration (ug/g dry weight)	Sample Date	Analytical Method
Arsenic	52.5	April 6, 2009	SW 846-60
Cadmium	2	April 6, 2009	SW 846-60
Chromium	21.9	April 6, 2009	SW 846-60
Copper	257	April 6, 2009	SW 846-60
Lead	7.98	April 6, 2009	SW 846-60
Mercury	0.317	April 6, 2009	SW 846-60
Molybdenum	5.33	April 6, 2009	SW 846-60
Nickel	13.9	April 6, 2009	SW 846-60
Selenium	4	April 6, 2009	SW 846-60
Zinc	221	April 6, 2009	SW 846-60

2009 Sludge Analysis

Pollutant	Concentration (ug/g dry weight)	Sample Date	Analytical Method
Arsenic	29.9	May 5, 2009	SW 846-60
Cadmium	2	May 5, 2009	SW 846-60
Chromium	11.8153	May 5, 2009	SW 846-60
Copper	4.83	May 5, 2009	SW 846-60
Lead	4.83	May 5, 2009	SW 846-60
Mercury	0.198	May 5, 2009	SW 846-60
Molybdenum	4	May 5, 2009	SW 846-60
Nickel	9.48	May 5, 2009	SW 846-60
Selenium	20	May 5, 2009	SW 846-60
Zinc	104	May 5, 2009	SW 846-60
Pollutant	Concentration (ug/g dry weight)	Sample Date	Analytical Method
Arsenic	29.8	July 6, 2009	SW 846-60
Cadmium	2	July 6, 2009	SW 846-60
Chromium	24.3	July 6, 2009	SW 846-60
Copper	364	July 6, 2009	SW 846-60
Lead	21.6	July 6, 2009	SW 846-60
Mercury	0.318	July 6, 2009	SW 846-60
Molybdenum	7.74	July 6, 2009	SW 846-60
Nickel	16	July 6, 2009	SW 846-60
Selenium	17.2	July 6, 2009	SW 846-60
Zinc	208	July 6, 2009	SW 846-60
Pollutant	Concentration (mg/kg dry weight)	Sample Date	Analytical Method
Arsenic	4.5	September 22, 2009	SW 846-60
Cadmium	1.3	September 22, 2009	SW 846-60
Chromium	27.6	September 22, 2009	SW 846-60
Copper	314	September 22, 2009	SW 846-60
Lead	5.7	September 22, 2009	SW 846-60
Mercury	0.063	September 22, 2009	SW 846-60
Molybdenum	4.1	September 22, 2009	SW 846-60
Nickel	19.2	September 22, 2009	SW 846-60
Selenium	4.0	September 22, 2009	SW 846-60
Zinc	274	September 22, 2009	SW 846-60

2009 Sludge Analysis

Pollutant	Concentration (mg/kg dry weight)	Sample Date	Analytical Method
Arsenic	3.9	November 3, 2009	SW 846-60
Cadmium	0.71	November 3, 2009	SW 846-60
Chromium	29.4	November 3, 2009	SW 846-60
Copper	381	November 3, 2009	SW 846-60
Lead	9.5	November 3, 2009	SW 846-60
Mercury	0.09	November 3, 2009	SW 846-60
Molybdenum	4.8	November 3, 2009	SW 846-60
Nickel	22.3	November 3, 2009	SW 846-60
Selenium	0.0	November 3, 2009	SW 846-60
Zinc	278	November 3, 2009	SW 846-60

- yellow denotes less than detection limit

2010 Sludge Analysis

Pollutant	Concentration (mg/kg dry weight)	Sample Date	Analytical Method
Arsenic	4.9	January 5, 2010	EPA 6010
Cadmium	1.6	January 5, 2010	EPA 6010
Chromium	29.1	January 5, 2010	EPA 6010
Copper	276	January 5, 2010	EPA 6010
Lead	4.6	January 5, 2010	EPA 6010
Mercury	0.038	January 5, 2010	EPA 6010
Molybdenum	4.3	January 5, 2010	EPA 6010
Nickel	19.3	January 5, 2010	EPA 6010
Selenium	7.0	January 5, 2010	EPA 6010
Zinc	187	January 5, 2010	EPA 6010
Pollutant	Concentration (mg/kg dry weight)	Sample Date	Analytical Method
Arsenic	3.0	March 1, 2010	EPA 6010
Cadmium	2.3	March 1, 2010	EPA 6010
Chromium	26.7	March 1, 2010	EPA 6010
Copper	297	March 1, 2010	EPA 6010
Lead	6.1	March 1, 2010	EPA 6010
Mercury	0.08	March 1, 2010	EPA 6010
Molybdenum	4.1	March 1, 2010	EPA 6010
Nickel	17.8	March 1, 2010	EPA 6010
Selenium	4.5	March 1, 2010	EPA 6010
Zinc	212	March 1, 2010	EPA 6010
Pollutant	Concentration (mg/kg dry weight)	Sample Date	Analytical Method
Arsenic	2.7	May 4, 2010	EPA 6010
Cadmium	1.9	May 4, 2010	EPA 6010
Chromium	32.9	May 4, 2010	EPA 6010
Copper	229	May 4, 2010	EPA 6010
Lead	7.0	May 4, 2010	EPA 6010
Mercury		May 4, 2010	EPA 6010
Molybdenum	4.2	May 4, 2010	EPA 6010
Nickel	22	May 4, 2010	EPA 6010
Selenium	5.1	May 4, 2010	EPA 6010
Zinc	216	May 4, 2010	EPA 6010

2010 Sludge Analysis

Pollutant	Concentration (mg/kg dry weight)	Sample Date	Analytical Method
Arsenic	7.7	July 1, 2010	EPA 6010
Cadmium	0.56	July 1, 2010	EPA 6010
Chromium	22.1	July 1, 2010	EPA 6010
Copper	315	July 1, 2010	EPA 6010
Lead	9.8	July 1, 2010	EPA 6010
Mercury	0.095	July 1, 2010	EPA 6010
Molybdenum	2.8	July 1, 2010	EPA 6010
Nickel	13.1	July 1, 2010	EPA 6010
Selenium	ND	July 1, 2010	EPA 6010
Zinc	346	July 1, 2010	EPA 6010
Pollutant	Concentration (mg/kg dry weight)	Sample Date	Analytical Method
Arsenic			EPA 6010
Cadmium			EPA 6010
Chromium			EPA 6010
Copper			EPA 6010
Lead			EPA 6010
Mercury			EPA 6010
Molybdenum			EPA 6010
Nickel			EPA 6010
Selenium			EPA 6010
Zinc			EPA 6010
Pollutant	Concentration (mg/kg dry weight)	Sample Date	Analytical Method
Arsenic			EPA 6010
Cadmium			EPA 6010
Chromium			EPA 6010
Copper			EPA 6010
Lead			EPA 6010
Mercury			EPA 6010
Molybdenum			EPA 6010
Nickel			EPA 6010
Selenium			EPA 6010
Zinc			EPA 6010

- yellow denotes less than detection limit

SECTION 4

OTHER FORMS

(VPDES PERMIT APPLICATION ADDENDUM,
PERMIT BILLING FORM,
PUBLIC NOTICE BILLING INFORMATION FORM)

VPDES Permit Application Addendum

1. Entity to whom the permit is to be issued: Frederick-Winchester Service Authority
Who will be legally responsible for the wastewater treatment facilities and compliance with the permit? This may or may not be the facility or property owner.

2. Is this facility located within city or town boundaries? Y / N

3. What is the tax map parcel number for the land where this facility is located? 56-A-19

4. For the facility to be covered by this permit, how many acres will be disturbed during the next five years due to new construction activities? N/A

5. **ALL FACILITIES:** What is the design average flow of this facility? 12.6 MGD
Industrial facilities: What is the max. 30-day avg. production level (include units)? _____

In addition to the above design flow or production level, should the permit be written with limits for any other discharge flow tiers or production levels? Y / N

If "Yes", please specify the other flow tiers (in MGD) or production levels: _____
Please consider: Is your facility design flow considerably greater than your current flow? Do you plan to expand operations during the next five years?

6. Nature of operations generating wastewater:

Nature of wastewater is both domestic and industrial in source

72 % of flow from domestic connections/sources

Number of private residences to be served by the wastewater treatment facilities: 0 1-49 ☒ 50 or more

28 % of flow from non-domestic connections/sources

7. **Mode of discharge:** ☒ Continuous ☐ Intermittent ☐ Seasonal

Describe frequency and duration of intermittent or seasonal discharges:

8. Identify the characteristics of the receiving stream at the point just above the facility's discharge point:

- ☒ Permanent stream, never dry
☐ Intermittent stream, usually flowing, sometimes dry
☐ Ephemeral stream, wet-weather flow, often dry
☐ Effluent-dependent stream, usually or always dry
☐ Lake or pond at or below the discharge point

Other: _____

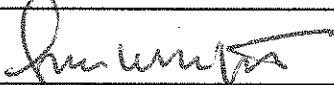
9. Approval Date(s):

O & M Manual April 22, 2002 Sludge/Solids Management Plan February 24, 1988

Have there been any changes in your operations or procedures since the above approval dates? Y / N

PUBLIC NOTICE BILLING INFORMATION

I hereby authorize the Department of Environmental Quality to have the cost of publishing a public notice billed to the Agent/Department identified below. The public notice will be published once a week for two consecutive weeks in the Winchester Star in accordance with 9 VAC 25-31-290.C.2.

Agent/Department to be billed:	Frederick-Winchester Service Authority
Owner:	
Agent/Department Address:	P.O Box 43
	Winchester, Virginia
	22604
Agent's Telephone No.:	(540) 722-3579
Printed Name:	Jesse W. Moffett
Authorizing Agent – Signature:	
Date:	8/12/10

☐ Please check the box if you have verified with the Winchester Star that you have an acceptable credit account with them.

VPDES Permit No. VA0065552
Opequon WRF

Attention Permittee: Please complete the above information and return this form with your application to Trevor Wallace, DEQ-Valley Regional Office, P.O. Box 3000, Harrisonburg, Virginia 22801.

**VPDES/VPA Permit Billing Information Form
for Annual Maintenance Fee**

Facility Name: Opequon Water Reclamation Facility

Permit Number: VA0065552

**Tax Payer ID (Federal
Identification Number):** 54-1035792

**Social Security Number
if no Tax Payer ID:** _____

Owner Name: Frederick-Winchester Service Authority

Owner Address: P.O. Box 43

Winchester, VA 22604

Billing Contact Name: Jesse W. Moffett

Title: Executive Director

Phone Number: (540) 722-3579

E-Mail Address: jmoффett@fredwin.com